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**UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA**

VERNON UNSWORTH,

Plaintiff,

vs.

ELON MUSK,

Defendant.

Case No. 2:18-cv-08048

Judge: Hon. Stephen V. Wilson

**DECLARATION OF MICHAEL T.
LIFRAK IN SUPPORT OF
DEFENDANT'S MOTION IN
LIMINE NO 5 TO EXCLUDE THE
EXPERT OPINION OF DR.
BERNARD J. JANSEN**

Complaint Filed: September 17, 2018
Trial Date: December 2, 2019

Hearing Date: November 25, 2019
Time: 3:00 p.m.
Courtroom: 10A

1 **I, Michael T. Lifrak, declare as follows:**

2 1. I am a member of the bar of the State of California and a partner at
3 Quinn Emanuel Urquhart & Sullivan, LLP, attorneys for Defendant Elon Musk. I
4 make this declaration of personal, firsthand knowledge, and if called and sworn as a
5 witness, I could and would testify competently thereto.

6 2. I submit this declaration in support of Mr. Musk's Motion in Limine
7 No. 5 to Exclude the Expert Opinion of Dr. Bernard J. Jansen.

8 3. Attached hereto as **Exhibit 1** is a true and correct copy of the Expert
9 Report of Dr. Bernard "Jim" Jansen, served on Defendant on September 13, 2019.

10 4. Attached hereto as **Exhibit 2** is a true and correct copy of excerpts from
11 the November 4, 2019 deposition of Dr. Bernard "Jim" Jansen in this case.

12 5. Attached hereto as **Exhibit 3** is a true and correct copy of Exhibit 152 to
13 the November 4, 2019 deposition of Dr. Bernard "Jim" Jansen, *Elon Musk calls*
14 *British diver in Thai cave rescue a 'pedo' in baseless attack*, FEEDIMO (July 15,
15 2018), <https://feedimo.com/story/29871311>.

16 6. Attached hereto as **Exhibit 4** is a true and correct copy of Exhibit 153 to
17 the November 4, 2019 deposition of Dr. Bernard "Jim" Jansen, Bill Murphy Jr., *If*
18 *You're Calling Someone a 'Pedo' on Twitter, Elon Musk, It's Time to Take a Long,*
19 *Hard Look at Your Life*, INC.COM (July 16, 2018), [https://www.inc.com/bill-murphy-](https://www.inc.com/bill-murphy-jr/if-youre-calling-someone-a-pedo-on-twitter-elon-musk-its-time-to-take-a-long-hard-look-at-your-life.html)
20 [jr/if-youre-calling-someone-a-pedo-on-twitter-elon-musk-its-time-to-take-a-long-](https://www.inc.com/bill-murphy-jr/if-youre-calling-someone-a-pedo-on-twitter-elon-musk-its-time-to-take-a-long-hard-look-at-your-life.html)
21 [hard-look-at-your-life.html](https://www.inc.com/bill-murphy-jr/if-youre-calling-someone-a-pedo-on-twitter-elon-musk-its-time-to-take-a-long-hard-look-at-your-life.html).

22 7. Attached hereto as **Exhibit 5** is a true and correct copy of Exhibit 147 to
23 the November 4, 2019 deposition of Dr. Bernard "Jim" Jansen, Adrienne LaFrance,
24 *The Internet Is Mostly Bots*, THE ATLANTIC (January 31, 2017),
25 <https://www.theatlantic.com/technology/archive/2017/01/bots-bots-bots/515043/>.

26 8. Attached hereto as **Exhibit 6** is a true and correct copy of Exhibit 150 to
27 the November 4, 2019 deposition of Dr. Bernard "Jim" Jansen, Patrick Langridge,
28

1 *How Accurate Are Website Traffic Estimators?*, SCREAMING FROG (June 13, 2016),
2 <https://www.screamingfrog.co.uk/how-accurate-are-website-traffic-estimators/>.

3 9. Attached hereto as **Exhibit 7** is a true and correct copy of Exhibit 151 to
4 the November 4, 2019 deposition of Dr. Bernard “Jim” Jansen, Joshua Hardwick,
5 *Find Out How Much Traffic a Website Gets: 3 Ways Compared*, AHREFS (August 16,
6 2018), <https://ahrefs.com/blog/website-traffic/>.

7
8 I declare under penalty of perjury under the laws of the State of California that
9 the foregoing is true and correct and that this document was executed in Los
10 Angeles, California.

11
12 DATED: November 8, 2019

13
14 By  _____

15 Michael T. Lifrak
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EXHIBIT 1

I. INTRODUCTION

1. I have been retained by the law firm of L. Lin Wood, P.C. to provide expert analysis and opinion on behalf of Mr. Vernon Unsworth in the case Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant, Case No. 2:18-cv-8048, which is pending in the United States District Court, Central District of California.

II. QUALIFICATIONS

2. I am an adjunct professor at the College of Information Sciences and Technology at The Pennsylvania State University (Penn State), University Park, Pennsylvania, since 2017, where I have been employed since 2001. I was a tenure-track professor at Penn State from 2002 through 2016, departing as a tenured full professor in 2017 to become a principal research scientist at the Qatar Computing Research Institute (QCRI). I was a Senior Fellow at the Pew Internet & American Life Project, which is part of the Pew Research Center, from 2010 through 2012. I was a University Expert at the National Ground Intelligence Center from 2011 through 2014. Prior to my employment at Penn State, I was a Lecturer in the Computer Science Program at the University of Maryland (Asian Division) for 1 year, and before that, I was an Assistant Professor in the Department of Electrical Engineering and Computer Science at the United States Military Academy (USMA), a.k.a. West Point, for three years.

3. In addition to my academic credentials, my professional experience includes 20 years of practice in the U.S. military, serving in the Infantry as an enlisted soldier and then as a communications officer, working primarily in a variety of information technology-related positions.

4. I am currently the editor-in-chief of the international academic journal, Information Processing and Management, which is a top-ranked journal in the information science field, and

former editor-in-chief of the journal, Internet Research, a top-ranked journal in the web science domain.

5. I have authored approximately 350 academic publications, focusing on the areas of Web data, digital analytics, Web analytics, Web searching, Web search engines, social media, and related areas. Approximately 250 of my publications address aspects of search analytics, Web analytics, online advertising, search engines, or Web searching. Some of my recent research work focuses on online news analytics, which is the investigation of the online qualitative and quantitative attributes of news stories with other digital content, and social computing analytics, which is the investigation of social behavior using algorithmic methods. I have authored, co-authored, or co-edited four books, including Web Search: Public Searching of the Web (2007), Understanding User – Web Interactions via Web Analytics (2009) and Understanding Sponsored Search (2011). A copy of my complete curriculum vitae, which includes a list of all publications I have authored in the past ten years, is attached as **Appendix A**.

6. My fields of professional expertise include web analytics, search engines, web searching, social media, online advertising, and related computer science and data science areas. In the course of my academic career, I have worked with a variety of search engines and information searching applications to understand user searching behavior on the Web and other environments. For example, as part of my Master's program in Computer Science, I designed and coded a text-based search engine. For my Doctorate program in Computer Science, I developed a program interface for Web search engines and implemented it on the Gigabyte search engine. In subsequent research, I have worked with the Microsoft Internet Information Services (IIS) and Verity commercial searching systems.

7. As a computer scientist, I have engaged and am experienced with classic computer science areas, such as programming, software development, algorithms, and networking. I have taught a wide variety of computer courses, including micro-computing, programming (in various programming languages), and the Web/Internet, at both the undergraduate and graduate level.

8. Concerning user searching behaviors on the Web and web analytics, I have worked directly with real-user searching data from several web search engines. I have also analyzed web data of visitor traffic and other attributes from a variety of websites and social media platforms. I have analyzed real-user data from online search marketing campaigns and user referral traffic to websites. I have conducted research and teaching concerning aspects of websites, including search engine keyword advertising. I have developed web analytics models and processes for analysis of business goals, and I have used web analytics data in both my research and teaching. I've also conducted other research on user searching behaviors.

9. I have advised government agencies and companies in consulting and expert witness matters. A list of cases in which I have testified as an expert in deposition or trial in the past four years is attached as **Appendix B**.

10. I am being compensated for my work on this case at the rate of \$400 per hour.

III. ASSIGNMENT AND MATERIALS CONSIDERED

11. In providing my expert opinion, I have been asked to respond to the following question:

12. *What is the level of dissemination of the defaming statements made by Mr. Elon Musk asserting that Mr. Vernon Unsworth is a pedophile¹, is a child rapist², married a child³, or is involved in child sex trafficking⁴?*

13. For brevity, I refer to the defaming statements by Mr. Musk against Mr. Vernon Unsworth as the *defaming statements, statements, or defaming statements against Mr. Unsworth*.

14. In referring to these statements as defaming, I am employing the laymen's dictionary definition of defamation⁵ (i.e., defamation per se).

15. My analysis is based on my experience, training, knowledge, and education and is formed through the application of that experience, training, knowledge, and education in the principles of web data collection, web analytics, web search, search engines, websites, web traffic analysis, and related market analysis.

16. The references that I considered in preparing this report are listed in **Appendix C**. Printouts of these references on the date that I reviewed them are included as separate attachments.

17. The links to each of the articles containing the defaming statements used in my analysis are listed in **Appendix D**.

18. For the traffic to the domains hosting these articles, I retrieved the number of unique visitors via the SimilarWeb Application Program Interface (API)⁶. This unique visitor traffic data is presented in **Appendix E**.

¹ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, Exhibit D and Exhibit E

² Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, Exhibit K

³ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, Exhibit K

⁴ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, Exhibit K

⁵ Merriam-Webster: "the act of communicating false statements about a person that injure the reputation of that person; the act of defaming another". See <https://www.merriam-webster.com/dictionary/defamation>

⁶ SimilarWeb API Documentation https://www.similarweb.com/corp/developer/estimated_visits_api

IV. SUMMARY OF OPINIONS

19. Based on my research and analysis in connection with this assignment, which is described in more detail in the body of this report, along with my own experience, training, knowledge, and education as stated, I have reached the following opinions:

20. *The defaming statements made by Mr. Elon Musk asserting that Mr. Vernon Unsworth is a pedophile, is a child rapist, married a child, and/or is involved in child sex trafficking:*

- a. *have been disseminated on at least 354 online media or other sites,*
- b. *in at least 605 stories or articles,*
- c. *with more than 98 million⁷ potential daily unique visitors,*

since the statements were made to the date that I filed this report, inclusive.

21. Note that these articles are still available online from various news and other web sites and have been since the dates that they were posted. The articles are, most likely, still being viewed by people visiting these websites.

22. These numbers are conservative. It is more likely than not that the defaming statements have received wider dissemination due to factors discussed in more detail later in this report, which are:

- a. I most likely have **not** located all the references to the defaming statement on every website by the time of the submission of this report.
- b. I did **not** examine dissemination of the statements via print, radio, or other broadcast media.
- c. I did **not** measure face-to-face dissemination of articles containing the defaming statements.

⁷ The exact traffic number I arrived at is 98,362,092 potential daily unique visitors.

d. I did **not** include email messages, personal social media messages, articles behind firewalls, etc. containing the defaming statements.

e. I did **not** include websites that might have hosted the defaming statements but removed them before I conducted my search.

f. I did **not** include websites where visitor data is not available or where I could not confirm the number of visitors.

g. I did **not** include multiple articles on multiple days from the same media outlet (i.e., the unique visitors number for each domain includes only one day of traffic).

h. I did **not** include articles that link to the defaming statements.

i. I did **not** include multiple individuals reading the same article at or about the same time via the same device.

j. I did **not** include in my analysis articles that were in non-English (i.e., the number of articles only includes those written in English).

k. I did **not** include in my analysis articles primarily about the legal case⁸.

l. I did **not** include the counts of those people who may have seen the defaming statements in search results.

m. Finally, I did **not** include the counts of those who may have seen the defaming statements primarily on social media platforms.

V. BACKGROUND WEB ANALYTICS FOR TRAFFIC ANALYSIS

23. In the course of forming this opinion, I implemented numerous web analytics and related techniques commonly used in the industry. To more clearly discuss these techniques, I define the following terms:

⁸ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation

- **Dissemination**: the act of spreading or the circulation of information or articles.
- **Domain**: a specific Internet website administered as a unit and defined by an Internet Protocol (IP) address; commonly known as a website.
- **Web Analytics**: the measurement, collection, analysis, and reporting of web data.
- **Visits**: a count of all the traffic to a website in a given period, including both unique and repeat visits.
- **Unique Visits**: visitor traffic to a website within a given period that includes only the first visit (i.e., subsequent visits are ignored), which excludes repeating visits; provides a count of the people visiting a site in a given period.
- **Repeat Visits**: visitor traffic to a website in a given period that **just** includes multiple visits from the same set of IP addresses (i.e., IP addresses with more than one visit); provides a count of the people visiting a site more than once in a given period. An individual is usually defined by a combination of IP address and browser within a given period but can also be defined by more sophisticated methods.
- **Unique Daily Visitors**: visitor traffic to a website that visits a site at least once in a given 24-hour period. Each visitor, to the site, is counted once during the reporting period, which means it excludes repeat visits; provides a count of the people visiting a site on a given day.

24. In forming my opinion, I utilized accepted web analytics and related methodologies. To that end, I employed various publicly available online analytics services, as well as subscription-based services in conducting my research, including:

- **SimilarWeb**: an online service that provides web traffic data and analysis⁹.

⁹ SimilarWeb is a service that provides traffic estimations for websites and is used by agencies in the online advertising and marketing domain. Data for its estimation is collected from a variety of sources. See: SimilarWeb: Our Data We Have a Unique Approach to Measuring the Digital World. <https://www.similarweb.com/corp/ourdata/>

- **Comscore:** a marketing research, measurement, and analytics service.
- **Google Ads Keyword Tool:** an online service that provides the number of searches for a given set of keywords in a given month on the Google search engine.
- **Google Trends:** an online service that shows how often a particular term is relatively searched on the Google search engine in a given period.

25. These tools offer a variety of data and analysis services, and they are frequently utilized by industry professionals in the search engine optimization, web analytics, and search engine marketing fields for the market, customer, and competitive analysis. Furthermore, when possible, I did my assessments, as outlined below, to validate the data and analysis results.

26. I also utilized the Google search engine to assess the dissemination of articles containing the statements.

27. When possible, I used multiple data sources, which is a data verification technique known as triangulation¹⁰, where one uses multiple and disparate sources for analysis and then compare the results from the separate analysis. If the results are similar, it reinforces the conclusion that the overall data analysis is valid.

28. In situations where I believed that I could not adequately verify the number of individuals or did not have confidence in the numbers in those situations, I did **not** include those numbers in the calculation.

29. Concerning the accuracy of the article analysis, the number of article and number of domains where the statements have been disseminated is reliable, as this is straightforward to verify (i.e., The article is either posted on a site, or it is not posted. The article either contains the defaming statements, or it does not.). If anything, this is an undercount due to the reasons

¹⁰ Triangulation (social science) http://en.wikipedia.org/wiki/Triangulation_%28social_science%29

discussed in this report, including there are most likely articles containing the defaming statements that I have not been able to locate by the time that I submitted this report.

30. Concerning the accuracy of the traffic analysis of these domains, the traffic services that I used are the de facto industry standard tools for this type of investigation, with billions of dollars in online advertising spend based on these and related numbers¹¹. Therefore, I consider them reliable also for the purpose employed here. I primarily employed SimilarWeb¹²¹³.

31. Also, I take measures to ensure the traffic analysis results are conservative, as discussed below.

VI. METHODOLOGY TO DETERMINE THE DISSEMINATION OF THE DEFAMING STATEMENTS AGAINST MR. UNSWORTH

32. The original defaming statements were made by Mr. Musk via Twitter posts¹⁴ and via an email message to one or more reporters at BuzzFeed¹⁵. I briefly present these events and associated metrics here.

33. The original defaming statement appears to have been posted by Mr. Musk to his Twitter account, which (as of 28 August 2018), had more than 22 million followers, whom all could potentially have seen the defaming statements (see Figure 1).

¹¹ Jasmine Enberg (2019) Digital Ad Spending 2019 US. eMarketer. <https://www.emarketer.com/content/us-digital-ad-spending-2019>

¹² SimilarWeb is one of the major traffic estimation services. It is generally considered one of the most reliable of the traffic estimation services. See, for example: How Accurate Are Website Traffic Estimators? by Patrick Langridge. <https://www.screamingfrog.co.uk/how-accurate-are-website-traffic-estimators/>

¹³ SimilarWeb is employed by a variety of major commercial businesses in a variety of domains for web traffic and related analysis. See: SimilarWeb Marketing Solution: The Most Reliable and Comprehensive Data on Competitor and Market Strategies.

¹⁴ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, Exhibit A, Exhibit B, Exhibit C, Exhibit D, Exhibit E, Exhibit F, Exhibit G, Exhibit I

¹⁵ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, Exhibit A, Exhibit J, Exhibit K

34. **Figure 1: Snippet of Banner of Twitter Account of Mr. Musk, with 22.4 million followers as of 28 August 2018¹⁶.**



35. In a series of tweets on 15 July 2018, Mr. Musk raises questions about Mr. Unsworth being at the cave site (see Figure 2), refers to Mr. Unsworth as 'pedo'¹⁷ (see Figure 3), and seemingly confirms the accuracy of the earlier pedophile statement (see Figure 4).

36. On 17 July 2018, Mr. Musk tweets that he apologizes for the statements (see Figure 5).

37. On 28 August, Mr. Musk seemingly confirms, again, the accuracy of the earlier pedophile accusation against Mr. Unsworth (see Figure 6).

38. As noted just in Figures 2-6, these combined tweets have been liked, re-tweeted, or commented on by thousands of people, and they potentially have been viewed by many more who did not interact with them directly or have seen them in the Twitter accounts of others.

¹⁶ Image from: 2018-08-28 Tweets with replies by Elon Musk (@elonmusk) _ Twitter.pdf

¹⁷ A standard abbreviation for pedophile. See: Ped- <https://en.wikipedia.org/wiki/Ped->

39. **Figure 2: Tweets from Mr. Musk Related to the Defaming Statement**

Referring to Mr. Unsworth as a Pedophile, along with Number of Associated Comments, Re-tweets, and Likes at the Time the Screenshot was Taken¹⁸.



40. **Figure 3: Tweet from Mr. Musk Containing the Defaming Statement**

Accusing Mr. Unsworth of Being a Pedophile, along with Number of Associated Comments, Re-tweets, and Likes at the Time the Screenshot was Taken¹⁹.



¹⁸ Image from: Catherine Shu (2018) Elon Musk tweets he'll 'bet ya a signed dollar that Thai cave rescuer is a 'pedo'. TechCrunch. <https://techcrunch.com/2018/07/15/elon-musk-tweets-hell-bet-ya-a-signed-dollar-that-thai-cave-rescuer-is-a-pedo/>

¹⁹ Image from: Harvey Day (2018) The diver called a 'pedo' by Elon Musk has hired a lawyer and is preparing to sue. ShortList. <https://www.shortlist.com/news/elon-musk-pedo-guy-twitter-drew-olanoff>

41. **Figure 4: Tweet from Mr. Musk Seemingly Confirming the Defaming Statement Calling Mr. Unsworth a Pedophile, along with Number of Associated Comments, Re-tweets, and Likes at the Time the Screenshot was Taken**²⁰.



42. **Figure 5: Tweet from Mr. Musk Stating that He Apologies to Mr. Unsworth, along with Number of Associated Comments, Re-tweets, and Likes at the Time the Screenshot was Taken**²¹

²⁰ Image from: Catherine Shu (2018) Elon Musk tweets he'll 'bet ya a signed dollar that Thai cave rescuer is a 'pedo'. TechCrunch. <https://techcrunch.com/2018/07/15/elon-musk-tweets-hell-bet-ya-a-signed-dollar-that-thai-cave-rescuer-is-a-pedo/>

²¹ Image from: Elon Musk
https://twitter.com/elonmusk/status/1019472152796381185?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwtterm%5E1019472152796381185&ref_url=https%3A%2F%2Fqz.com%2F1330546%2Felon-musk-apologizes-for-calling-cave-diver-vernon-unsworth-a-pedophile%2F



43. **Figure 6: Tweet from Mr. Musk Seemingly Confirming the Defaming Statement Calling Mr. Unsworth a Pedophile, along with Number of Associated Comments, Re-tweets, and Likes at the Time the Screenshot was Taken**²²

²² Image from: Elon Musk
https://twitter.com/elonmusk/status/1034481160783585280?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed&ref_url=https%3A%2F%2Fwww.shortlist.com%2Fnews%2Felon-musk-pedo-guy-twitter-drew-olanoff



44. In response to Mr. Musk's tweet shown in Figure 3, there were numerous news articles, including one from BuzzFeed, a popular online media company, entitled ²³ *Elon Musk Didn't Help Save The Thai Boys, Now He's Attacking Someone Who Did*. A document from BuzzFeed shows that this article received at least 447,000 views from the time of publication until the document was produced ²⁴.

45. In response to Mr. Musk's tweet shown in Figure 6, there were numerous news articles, including an article from BuzzFeed, entitled ²⁵ *Elon Musk Has Revisited His Baseless Pedophile Claims*, published on 28 August 2018. A document from BuzzFeed shows that this

²³ Remy Smidt (2018) *Elon Musk Didn't Help Save The Thai Boys, Now He's attaching Someone Who Did*. BuzzFeed. <https://www.buzzfeednews.com/article/remysmidt/elon-musk-attacks-diver-who-helped-rescue-thai-boys>

²⁴ BuzzFeed0001-4

²⁵ Ryan Mac (2018) *Elon Musk Has Revisited His Baseless Pedophile Claims*. BuzzFeed. <https://www.buzzfeednews.com/article/ryanmac/elon-musk-revisits-baseless-pedophile-claims>

article received at least 56,800 views from the time of publication until the document was produced²⁶.

46. Apparently, in response to the BuzzFeed article of 28 August 2018 (see para above), Mr. Musk emailed the BuzzFeed reporter(s) on 30 August 2018. In the message, Mr. Musk makes further defaming statements against Mr. Unsworth, calling him a child rapist²⁷, having a child bride²⁸, and engaging in child sex trafficking²⁹, along with other comments.

47. BuzzFeed published the email message in an article on 4 September 2018³⁰. A document from BuzzFeed shows that this article received at least 348,000 views from the time of publication until the document was produced³¹.

48. So, from these two sources (Mr. Musk's Twitter account and the BuzzFeed articles), the defaming statements received substantial dissemination. From Mr. Musk's Twitter account, millions of people could have seen the defaming statements, and we know (based on the screenshots above of tweets containing the defaming statements) that thousands of people directly interacted with the tweets.

49. From BuzzFeed documents³², we know that hundreds of thousands of people, most likely, directly viewed the articles containing the defaming statements, and this number does not include people who may have seen the defaming statements without directly viewing

²⁶ BuzzFeed0001-6

²⁷ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, paragraph 88.

²⁸ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, paragraph 88.

²⁹ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, paragraph 88.

³⁰ Ryan Mac, Mark Di Stefano, and John Paczkowski (2018) In A New Email, Elon Musk Accused A Cave Rescuer Of Being A "Child Rapist" And Said He "Hopes" There's A Lawsuit. Buzzfeed.

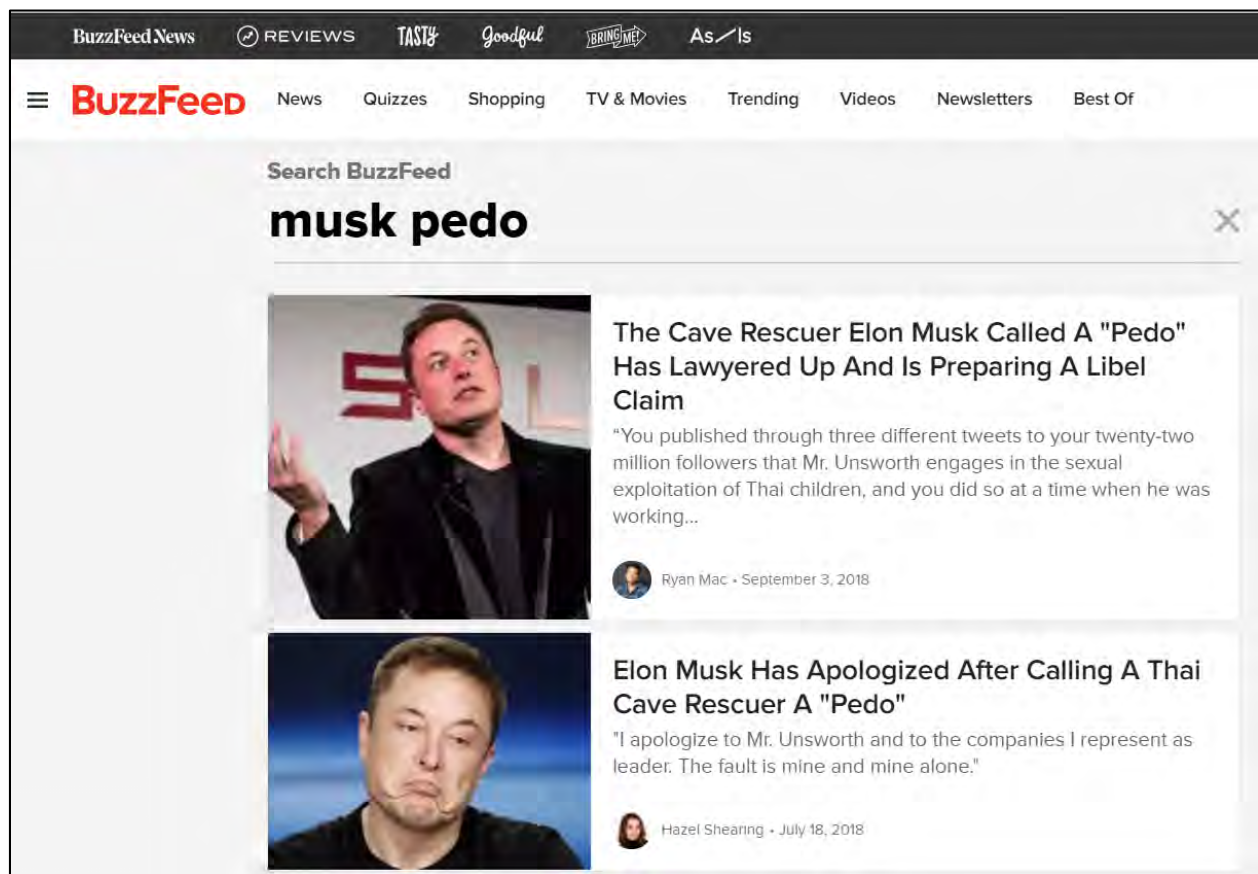
<https://www.buzzfeednews.com/article/ryanmac/elon-musk-thai-cave-rescuer-accusations-buzzfeed-email>

³¹ BuzzFeed0001-6

³² BuzzFeed0001-1-6

the articles themselves (i.e., people who came to the site but did not directly click on the article). Like many online news sites, BuzzFeed presents lists of news articles in title format³³ (and with title-and-snippets format in search results), so people visiting the site could have seen the defaming statements without ever actually viewing the article (see Figure 7).

50. **Figure 7: Example of Article Titles and Snippets on BuzzFeed Showing the Defaming Statements Made by Mr. Musk Against Mr. Unsworth.**



51. Out of curiosity, I searched for Mr. Unsworth's online presence before the occurrences surrounding this event. Mr. Unsworth's online presence before 13 June 2018 is

³³ Articles related to the defaming statements appeared on the BuzzFeed front page at least on 18CTV July 2018, 28 August 2018, and 4 September 2018. See: 2018-07-18 BuzzFeed News .pdf, 2018-08-28 BuzzFeed News _ Breaking News _ Original Reporting _ News Analysis.pdf, 2018-08-28 Tweets with replies by Elon Musk (@elonmusk) _ Twitter.pdf, and 2018-09-04 BuzzFeed News _ Breaking News _ Original Reporting _ News Analysis.pdf.

minimal, with an Instagram profile page, a Facebook profile page (with no posts the date that I checked), and a LinkedIn profile page (with one connection the date that I checked). Mr. Unsworth had little to no online presence until his appearance in a CNN story on the cave rescue³⁴. Checking Google Trends³⁵ and Google Ads³⁶, there was little to no searching for *vernon unsworth*³⁷ prior to this event.

52. As mentioned, my opinion is that articles containing the defaming statements have been disseminated on at least 354 online media or other sites in at least 605 separate stories or articles with at least a combined 98 million³⁸ potential daily visitors.

53. This is a conservative assessment, and it is more likely than not, the statements have received wider dissemination due to the factors explained below.

54. Even using this conservative assessment, the defaming statements were disseminated to outlets based in multiple countries, including the United States, the United Kingdom, Thailand, Australia, New Zealand, Japan, China, India, Russia, etc., covering thirty-one (31) countries in all. See **Appendix F** for a complete listing of countries in which the outlets are based.

55. Of the 605 articles containing one or more of the defaming statements:

a. 465 (77%) articles primarily contain the defaming statement by Mr. Musk about Mr. Unsworth being a pedophile,

³⁴ Nick Glass The miraculous story of the Thai cave rescue. CNN. 13 July 2019. https://www.youtube.com/watch?v=d7uhm_OIXj4

³⁵ See Google Trends <https://trends.google.com/trends/explore?date=all&geo=US&q=vernon%20unsworth>

³⁶ See Google Ads Keyword historical metrics - verson unsworth - Google Ads.pdf

³⁷ Using the phrase *vernon unsworth*

³⁸ The exact traffic number I arrived at is 98,362,092 potential daily unique visitors.

b. 93 (15%) articles primarily concern a tweet from Mr. Musk where he apologized for his defaming statements against Mr. Unsworth, although all of these articles mentioned one or more of the defaming statements.

c. 47 (8%) articles primarily concern the defaming statement by Mr. Musk of Mr. Unsworth being a child rapist/having a child bride.

56. Of the 605 articles containing one or more of the defaming statements:

a. 449 (74%) articles were published in the period 15 July 2018 – 3 September 2018,

b. 71 (12%) articles were published in the period 4 September 2018 – 17 September 2018, and

c. 85 (14%) articles were published in the period 17 September 2018 to the present³⁹.

57. As Mr. Unsworth is a citizen of the United Kingdom, 103 (17%) of these 605 articles are from 34 outlets based in the United Kingdom with more than 18 million unique daily visitors.

58. Concerning the procedure employed in determining the dissemination of the statements, I was not interested in articles that **just** discussed the story in general or other aspects of the story. I was specifically interested in only those articles that directly referenced the defaming statements and were not primarily about this case. This narrowed the focus to a subset of news articles and other articles which are less than the articles addressing the overall story.

³⁹ There were 27 articles that had no date, which I include in this count.

59. To isolate these articles of interest, I generated a series of queries to specifically retrieve a set of articles that directly related to the defaming statements⁴⁰. I also located articles via navigating from the set of retrieved articles. I started by searching for the actual defaming statements⁴¹ and from here using the titles of retrieved articles for further searching. I employed a modified snowball technique⁴², starting with these seed queries, adding and modifying terms until I was not retrieving a significant number of new results.

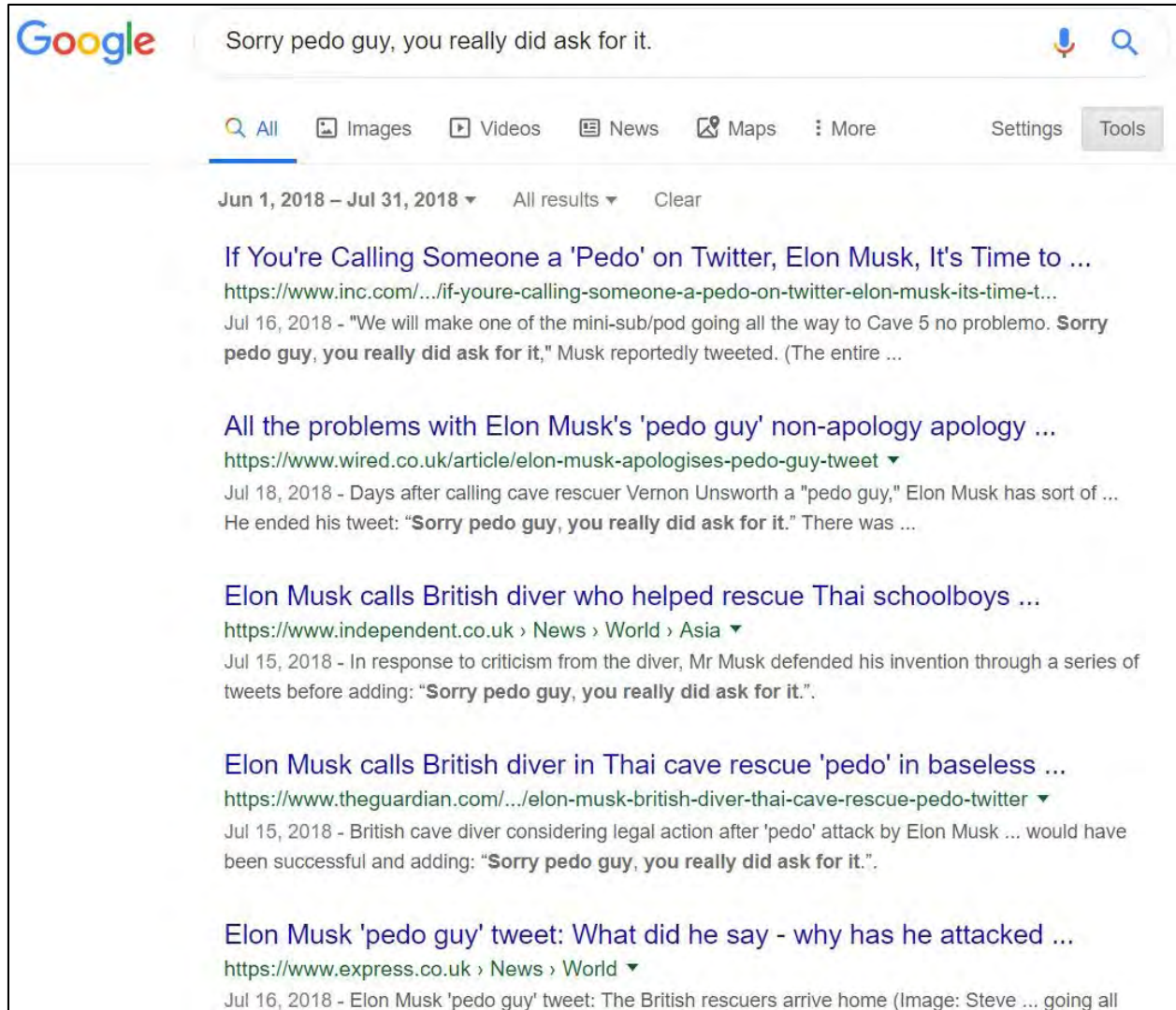
60. An example of a search engine results page in response to one of these queries is shown in Figure 8.

61. **Figure 8: Google search results for the search *Sorry pedo guy, you really did ask for it.***

⁴⁰ In addition to the queries, I located articles via direction navigation via following the links in articles that I had already located.

⁴¹ Vernon Unsworth, Plaintiff, v. Elon Musk, Defendant. Case No. 2:18-cv-8048 in the United State District Court Central District of California, Complaint for Defamation, Exhibit D, Exhibit E, and Exhibit K

⁴² Snowball Sampling https://en.wikipedia.org/wiki/Snowball_sampling



62. I then verified that each article contained the defaming statements by reviewing each article used in my analysis to ensure that the articles directly referenced in some way the defaming statements.

63. So, articles relating to the overall story that did **not** mention the defaming statements are **not** included in the analysis.

64. In the end, I had a set of 605 online news articles or stories from the date the defaming statements were made to the date that I filed this report that specifically referenced the defaming statements to conduct my analysis, as outlined below. Each of these 605 online articles

was posted online. The links to these articles⁴³ are listed in **Appendix D**, and file names of the article print-outs are listed in **Appendix E**, with the print-outs of the articles as they appeared on the date I reviewed the articles available as supplemental material to this report.

65. The 605 online articles were distributed via 354 unique domains (i.e., some websites posted multiple articles that contain the defaming statements by Mr. Musk). These domains are from outlets in multiple countries (e.g., the United States, United Kingdom, Thailand, Australia, New Zealand, Japan, China, India, Russia, etc.), with a complete listing of countries in **Appendix F**.

66. The list of domains that have published articles or stories containing the defaming statements about Mr. Unsworth, many of these domains are those of major news organizations (BBC, CNN, Fox News, Reuters, etc.), media companies (ABC, CBS, NBC, etc.), new media companies (HuffPost, BuzzFeed, Business Insider, Breitbart, etc.), major newspaper outlets (The Guardian, New York Times, New York Post, Mercury News, LA Times, Chicago Tribune, etc.), news magazines (Wired, Time, New Yorker, American Statesman, etc.), financial publications (Forbes, Fortune, Barrons, Inc., etc.), automotive information outlets (Carscoops, Autoblog, etc.), diving information outlets (Dive Magazine, Sports Breaking News, etc.), along with other international and local news outlets, radio station websites, discussion boards, and blogs.

67. Once I had the domains, I then employed web analytics traffic services to get the unique daily visitor traffic for each of these domains. I used SimilarWeb, as the service was providing the most consistent results across websites.

68. In cases where I determined I could not get unique daily visitor traffic numbers or the unique daily visitor traffic was not reliable, in my opinion, I did not include the unique daily

⁴³ These links were all functional on the date that I retrieved the articles.

visitor traffic numbers for that domain in the numbers. This situation generally occurred for the sites with no service available traffic⁴⁴ or sites with an extremely large number of daily visitors⁴⁵ where the news vertical was combined with other substantial verticals.

69. *Unique daily visitors* measure is an industry-standard web analytics metric for measuring people that visit a website in a given day, also known as a unique audience⁴⁶. It is generally averaged out over multiple days within a given period, such as week or month, as there are normal fluctuations.

70. Table 1 shows the unique daily visitor traffic for the listed domains that posted articles or stories referencing the defaming statements and the associated unique daily visitor traffic for each of those domains, along with the number of identified articles containing the defaming statements posted on that site that I could locate up to the date that I filed this report.

71. **Table 1: Domains that published articles or stories containing the defaming statements with the domain's number of unique daily visitors and the number of identified articles containing the statements published on that domain to the date that I filed this report.**

Unique Domain	Unique Daily Visitors	No. Articles
Onion.com ^a		1
1045freshradio.ca	136	2
abcnews.go.com	930,650	1
althouse.blogspot.com	3,146	1
amedpost.com	795	1
arstechnica.com	408,727	1

⁴⁴ The sites where I could not get traffic numbers are Onion.com, auntymike.com, bak.megam.info, businessglitz.com, energy953radio.ca, extras.ie, forum.thaivisa.com, irving.fortune.com, merdekaaid.com, themorningbellbd, travel.squibs.org, twnews.co.uk, www.countypress.co.uk, www.infonews360.com, www.saadahbahri.com, www.techthreat.co.uk. Although I counted **no traffic from these sites** in my analysis, it is reasonable to assume that they most likely had some unique visitors.

⁴⁵ The three sites where I had traffic numbers but excluded those numbers are: en.wikipedia.org, www.quora.com, www.yahoo.com. Although I counted **no traffic from these sites** in my analysis, it is reasonable to assume that they most likely had some unique visitors concerning articles containing the defaming statements.

⁴⁶ Nielsen Online Ratings Metrics Guidelines, <http://digitalmeasurement.nielsen.com/files/metrics-guidelines.pdf>

Unique Domain	Unique Daily Visitors	No. Articles
au.news.yahoo.com	85,031	1
auntymike.com ^a		1
austrian.economicblogs.org	67	1
bak.megam.info ^a		1
beta.nbcnews.com	107	1
bgr.com	648,154	1
bigwnews.com	365	1
blogs.findlaw.com	17,775	1
boingboing.net	115,189	2
businessglitz.com ^a		1
california.nris.com	55	1
canoe.com	63,817	1
celbestnews.com	34	2
chinapost.nownews.com	761	1
cisnfm.com	250	1
cnnphilippines.com	39,959	1
coconuts.co	23,804	2
country104.com	215	1
dailyasianage.com	1,416	2
dbpost.com	1,458	1
defence.pk	20,992	1
divemagazine.co.uk	1,405	3
dlisted.com	16,472	1
edition.cnn.com	774,586	1
elotiv.com	200	1
en.mogaznews.com	3,219	2
en.wikipedia.org ^b		1
energy953radio.ca ^a		1
entertainment.inquirer.net	35,884	1
expressdigest.com	790	1
extra.ie	8,804	1
extras.ie ^a		1
feedimo.com	162	2
finance.yahoo.com	806,127	3
floridaactioncommittee.org	214	1
fortune.com	208,506	6
forum.thaivisa.com ^a		6
fox61.com	6,821	1
freethoughtblogs.com	2,683	1
gadgets.ndtv.com	811,132	1
gizmodo.com	977,904	1
globalnews.ca	445,163	4

Unique Domain	Unique Daily Visitors	No. Articles
gulfnews.com	102,204	1
heavy.com	459,577	1
hienalouca.com	837	1
hotair.com	24,696	1
hotlifestylenews.com	357	1
hush-mag.com	79	1
inews.co.uk	113,504	4
interestingengineering.com	45,919	2
irving.fortune.com ^a		1
japantoday.com	22,889	2
jerseyeveningpost.com	4,462	2
junkee.com	33,332	1
kiwifarms.net	17,375	1
knappily.com	454	1
knowtechie.com	2,812	1
kywnewsradio.radio.com	1,800	2
lifeboat.com	1,031	1
loupventures.com	409	1
m.inquirer.net	7,041	1
magic106.com	163	1
markets.businessinsider.com	91,636	1
mashable.com	729,958	3
me.me	307,161	1
meaww.com	25,151	1
merdekaid.com ^a		1
metro.co.uk	987,847	5
mg.co.za	28,845	1
money.cnn.com	780,600	3
news.mb.com.ph	34,026	1
news.obiaks.com	45	1
news.philippinecentral.com	15	1
news.sky.com	360,557	4
news.thaivisa.com	560	2
news.yahoo.com	979,759	4
news.ycombinator.com	92,418	1
newsaltcoins.com	2	1
newsneednews.com	307	1
nextshark.com	68,498	1
nymag.com	364,709	1
nypost.com	1,206,648	3
people.com	1,567,284	1
pk.shafaqna.com	72	1

Unique Domain	Unique Daily Visitors	No. Articles
power97.com	205	1
pressfrom.info	1,324	3
qz.com	451,589	2
sanfrancisco.cbslocal.com	45,913	2
seekingalpha.com	247,501	1
slate.com	499,188	1
southfront.org	7,842	1
sputniknews.com	1,023,682	2
stopelonfromfailingagain.com	8	1
stv.tv	18,309	1
techcrunch.com	454,437	2
techgrabyte.com	560	1
thehill.com	640,781	3
themorningbellbd ^a		1
thenewdaily.com.au	42,395	1
thenextweb.com	121,986	2
thephagroup.com	99	1
thesunbest.com	252	1
theweek.com	134,083	1
theworldnews.net	12,391	3
time.com	821,188	5
tmssmagazine.com	50	1
travel.squibs.org ^a		1
trendingpress.com	18	1
truepundit.com	16,903	1
twnews.co.uk ^a		1
wgntv.com	50,493	1
wonderfulengineering.com	11,806	1
wreg.com	17,690	1
www.2oceansvibe.com	10,014	1
www.9news.com.au	158,609	1
www.abc.net.au	515,609	2
www.abc10.com	9,074	1
www.abcactionnews.com	38,445	1
www.adelaidenow.com.au	41,899	1
www.apnews.com	258,930	1
www.arabnews.com	39,740	1
www.asiaone.com	49,541	1
www.atlanticbb.net	4,154	2
www.autoblog.com	239,643	3
www.axios.com	140,597	1
www.bangkokpost.com	19,968	3

Unique Domain	Unique Daily Visitors	No. Articles
www.barrons.com	50,560	1
www.bbc.com	4,132,135	4
www.belfasttelegraph.co.uk	51,619	1
www.benzinga.com	24,806	1
www.bloomberg.com	992,008	1
www.breakingnews.ie	28,709	1
www.breakingviews.com	781	1
www.breitbart.com	259,665	2
www.briskoda.net	14,261	1
www.buriramtimes.com	184	1
www.businessdailyafrica.com	23,554	1
www.businessinsider.co.za	50,599	2
www.businessinsider.com	2,205,072	9
www.businessinsider.in	52,128	3
www.buzz.ie	15,690	1
www.buzzfeednews.com	447,739	3
www.bworldonline.com	13,339	1
www.cars.com	345,386	1
www.carscoops.com	47,989	2
www.carthrottle.com	39,134	3
www.cbc.ca	499,109	1
www.cbsnews.com	1,344,873	3
www.channelnewsasia.com	160,336	1
www.chiangraitimes.com	686	1
www.chicagotribune.com	436,715	1
www.chinadailyhk.com	693	1
www.cnbc.com	1,340,150	5
www.cnet.com	2,677,011	4
www.coffscoastadvocate.com.au	3,072	1
www.complex.com	478,539	1
www.countypress.co.uk ^a		1
www.cpr.org	5,066	1
www.ctvnews.ca	308,853	1
www.dailydot.com	175,953	1
www.dailymail.co.uk	2,497,277	7
www.dailymercury.com.au	4,644	1
www.dailyrecord.co.uk	90,306	1
www.dailystar.co.uk	818,222	3
www.datalounge.com	50,393	1
www.dazeddigital.com	46,644	1
www.deseretnews.com	86,374	1
www.digitalspy.com	803,547	1

Unique Domain	Unique Daily Visitors	No. Articles
www.digitaltrends.com	735,000	1
www.driven.co.nz	7,537	1
www.dw.com	499,457	2
www.eastlothiancourier.com	1,251	1
www.entrepreneur.com	347,267	1
www.esquire.com	497,505	4
www.eurogamer.net	369,474	1
www.euronews.com	164,063	2
www.europebreakingnews.net	715	1
www.express.co.uk	2,136,158	3
www.fastcompany.com	228,640	4
www.fbcnews.com.fj	2	1
www.fin24.com	51,930	1
www.financialexpress.com	386,484	1
www.forbes.com	2,158,221	1
www.fox23.com	7,303	1
www.foxnews.com	2,185,375	3
www.ft.com	311,376	3
www.gattonstar.com.au	510	1
www.gulf-times.com	8,537	1
www.her.ie	78,004	1
www.heraldsun.com.au	131,950	1
www.highsnobiety.com	135,462	3
www.hindustantimes.com	587,571	1
www.hollywoodreporter.com	671,253	2
www.htxt.co.za	3,070	1
www.huffingtonpost.ca	223,173	2
www.huffingtonpost.co.uk	196,721	3
www.huffingtonpost.com.au	54,514	1
www.huffingtonpost.in	52,338	1
www.huffpost.com	1,277,322	4
www.ibtimes.co.in	198,271	1
www.ibtimes.com	50,257	1
www.iен.com	1,174	1
www.inc.com	444,727	3
www.inc-asean.com	2,235	1
www.independent.co.uk	1,595,073	10
www.independent.ie	163,029	1
www.indiatoday.in	794,295	2
www.infonews360.com ^a		1
www.inquisitr.com	176,648	1
www.insider.com	139	2

Unique Domain	Unique Daily Visitors	No. Articles
www.inverse.com	151,384	3
www.investopedia.com	692,178	1
www.irishcentral.com	31,220	1
www.irishexaminer.com	69,845	2
www.irishtimes.com	188,535	7
www.itv.com	275,193	3
www.japantimes.co.jp	79,395	2
www.jihadwatch.org	10,562	1
www.joe.ie	73,157	1
www.khaosodenglish.com	4,495	1
www.kiiitv.com	4,121	1
www.king5.com	28,081	1
www.kqed.org	33,469	1
www.kvue.com	22,341	1
www.latimes.com	712,453	1
www.letsrun.com	34,320	1
www.libertyproject.com	1,176	1
www.lipstickalley.com	67,502	2
www.marketwatch.com	480,130	3
www.mediafirst.co.uk	112	1
www.mercurynews.com	209,953	3
www.metro.news	4,690	1
www.mirror.co.uk	1,165,389	5
www.motherjones.com	99,084	1
www.mysanantonio.com	63,025	1
www.naracoorteherald.com.au	196	1
www.narcity.com	175,006	1
www.nbc26.com	5,487	1
www.nbcnews.com	1,103,248	3
www.nbcwashington.com	33,584	1
www.ndtv.com	2,718,272	1
www.news.com.au	845,434	4
www.news18.com	908,176	3
www.news24.com	198,174	1
www.newscabal.co.uk	341	1
www.newscentermaine.com	5,604	2
www.newser.com	74,315	2
www.newstalk.com	7,152	1
www.newstalkzb.co.nz	8,895	2
www.newstatesman.com	38,714	1
www.newsweek.com	693,522	3
www.nhregister.com	7,568	1

Unique Domain	Unique Daily Visitors	No. Articles
www.northernstar.com.au	14,883	1
www.nova969.com.au	4,847	1
www.npr.org	1,069,594	2
www.nst.com.my	89,310	1
www.nydailynews.com	269,969	1
www.nytimes.com	3,433,602	4
www.nzherald.co.nz	159,011	3
www.oregister.com	60,112	1
www.omanobserver.om	1,587	1
www.onenewspage.com	2,875	1
www.orazio.it	2	1
www.parabolicarc.com	1,150	1
www.pedestrian.tv	57,660	1
www.philstockworld.com	336	1
www.prdaily.com	3,391	1
www.pressdemocrat.com	17,493	1
www.proactiveinvestors.com	2,672	1
www.prweek.com	3,884	1
www.qt.com.au	13,980	2
www.quora.com ^b		4
www.rappler.com	190,864	2
www.resetera.com	57,556	1
www.reuters.com	857,332	3
www.rnz.co.nz	8,899	2
www.rt.com	1,327,011	4
www.saadahbahri.com ^a		1
www.sbs.com.au	300,748	2
www.scmp.com	279,073	3
www.sfchronicle.com	120,443	1
www.shortlist.com	23,664	1
www.sltrib.com	63,683	1
www.smartcompany.com.au	11,143	1
www.spaceflightinsider.com	3,620	1
www.sportbreakingnews.com	183	1
www.thestar.com	242,384	4
www.standard.co.uk	405,314	5
www.straitstimes.com	160,111	4
www.stuff.co.nz	206,452	1
www.sunshinecoastdaily.com.au	21,334	2
www.takingonissues.com	435	1
www.tech-arena.co.uk	7	1
www.techspot.com	128,291	2

Unique Domain	Unique Daily Visitors	No. Articles
www.techthreat.co.uk ^a		1
www.telegraph.co.uk	1,685,575	9
www.theadvocate.com.au	2,904	1
www.theage.com.au	104,002	1
www.theatlantic.com	723,450	2
www.theaustralian.com.au	83,109	1
www.theblaze.com	63,093	1
www.thecitizen.co.tz	7,750	1
www.thecut.com	282,942	2
www.thedailybeast.com	486,686	3
www.thedailystar.net	44,663	1
www.thedetroitbureau.com	431	1
www.thedrive.com	62,450	2
www.theglobeandmail.com	225,608	1
www.theguardian.com	2,839,656	7
www.thehansindia.com	46,845	1
www.thehindu.com	399,532	1
www.thehindubusinessline.com	80,559	1
www.thejournal.ie	74,402	1
www.themarysue.com	42,443	1
www.thenational.ae	66,144	1
www.thepeninsulaqatar.com	7,253	1
www.thescottishsun.co.uk	56,480	1
www.thesouthafrican.com	99,470	2
www.thestandard.com.hk	3,497	1
www.thestudentroom.co.uk	291,335	1
www.thesun.co.uk	1,223,548	12
www.thetimes.co.uk	214,858	2
www.thetruthaboutcars.com	11,587	2
www.theverge.com	958,698	1
www.timeslive.co.za	101,962	1
www.tnp.sg	18,999	1
www.todayonline.com	51,340	1
www.toledoblade.com	14,316	1
www.tribuneindia.com	52,841	1
www.tribuneworldall.com	140	1
www.tvnz.co.nz	71,278	1
www.tweeddailynews.com.au	1,464	1
www.upr.org	513	1
www.usatoday.com	2,402,225	4
www.vice.com	1,181,707	2
www.vietnambreakingnews.com	1,012	1

Unique Domain	Unique Daily Visitors	No. Articles
www.vox.com	801,233	3
www.washingtonpost.com	2,087,166	2
www.wibw.com	8,343	1
www.wionews.com	1,866	1
www.wired.co.uk	94,873	2
www.wkyc.com	27,407	1
www.wsj.com	742,413	2
www.xinhuanet.com	441,464	2
www.yahoo.com ^b		2
www.ypradio.org	206	1
www.zerohedge.com	122,614	1
zeenews.india.com	374,566	1
	98,362,092	605

^a - Unique daily visitor traffic not available

^b - Unique daily visitor traffic not verifiable

72. As shown in Table 1, I identified 354 domains that hosted 605 articles containing the defaming statements by Mr. Musk against Mr. Unsworth with these defaming statements disseminated to, conservatively, approximately *98 million*⁴⁷ daily visitors to these websites.

73. I calculated each domain's unique daily visitor count to determine the dissemination of the articles containing the defaming statements for the set of websites (i.e., as visitors to the news sites, these individuals could have been exposed to the articles containing the statements) and used the unique daily visitor number only once for each domain, regardless of whether that domain published more than one article referring to the defaming statements. I used this overly conservative approach to account for the occurrence of possible repeat visitors to these websites (i.e., not potentially counting these visitors twice).

74. Depending on the methodology, traffic numbers can vary among services and even website analytics platforms. However, I wanted to verify that SimilarWeb⁴⁸ was not overly

⁴⁷ The exact traffic number I arrived at is 98,362,092 potential daily unique visitors.

⁴⁸ SimilarWeb is a defacto industry standard, used by a variety of companies in a variety of domains. See: SimilarWeb Marketing Solution: The Most Reliable and Comprehensive Data on Competitor and Market Strategies.

optimistic in the reported number of unique visitors. Comscore is a marketing research service that routinely publishes analytics data for major US domains. I compared the reported unique visitors for domains that appeared on one of the Comscore lists⁴⁹ with the unique visitors that were also in domains that I used in this report, with results presented in Table 2.

75. **Table 2: Comparison of SimilarWeb and Comscore Numbers of Daily Unique Visitors for Six Major News Sites.**

Domain	SimilarWeb	Comscore	Difference
www.usatoday.com	2,402,225	4,018,968	-40%
www.foxnews.com	2,185,375	3,867,806	-43%
www.nytimes.com	3,433,602	2,710,452	27%
www.washingtonpost.com	2,087,166	2,707,000	-23%
www.nypost.com	1,206,648	2,395,355	-50%
www.vox.com	801,233	2,575,355	-69%
	12,116,250	18,274,935	-34%

76. From Table 2, there were six domains⁵⁰ that appeared both in my analysis and in the Comscore listing. These six domains represent 12.3% (12.1M) of the unique visitors reported in this analysis. As shown the visitor traffic reported by SimilarWeb was lower than Comscore for five of the domains. The one exception was the New York Times⁵¹; this may be due to a difference in reporting, as Comscore is reporting traffic for New York Times Digital, while SimilarWeb is reporting traffic for the entire domain www.nytimes.com. However, even including this domain traffic as reported by Comscore, the overall SimilarWeb traffic numbers are substantially lower, indicating a conservative traffic estimation by the SimilarWeb methodology.

⁴⁹ Comscore20. Top 50 Multi-Platform Properties (Desktop and Mobile) July 2019
Total U.S. - Home and Work Locations. <https://www.comscore.com/Insights/Rankings>

⁵⁰ The Comscore 20 report listed them by name of network (USA TODAY Network, Fox Corporation, New York Times Digital, WASHINGTONPOST.COM, NYPost Network, and Vox Media), so there is probably some aggregation of domains.

⁵¹ www.nytimes.com

VII. RESULTS FOR ANALYSIS OF THE DISSEMINATION OF THE DEFAMING STATEMENTS AGAINST MR. UNSWORTH

77. *The defaming statements made by Mr. Elon Musk asserting that Mr. Vernon Unsworth is a pedophile, is a child rapist, married a child, and is involved in child sex trafficking:*

- a. have been disseminated to at least 354 online media or other sites,*
- b. in 605 separate stories or articles,*
- c. with more than 98 million⁵² potential daily unique visitors,*

since the statements were made to the date that I filed this report, inclusive.

78. This is a conservative number, and more likely than not, articles containing the defaming statements have been disseminated to more individuals.

VIII. WHY THE NUMBER IS CONSERVATIVE

79. It is more likely than not that the defaming statements have received wider dissemination due to factors such as:

a. Although I spent considerable effort to locate published articles that contained the defaming statements, it is reasonable to assume that I have not located all such articles by the time of the submission of this report, which would increase the dissemination of the articles on domains and increase the traffic count. So, there are most likely more sites with articles containing the defaming statements that are **not** included in my calculations.

b. The focus of my analysis was the dissemination of online articles containing the defaming statements. Therefore, I did not examine the dissemination of the statements via print, radio, or other broadcast media. It is reasonable to assume that the

⁵² The exact traffic number I arrived at is 98,362,092 potential daily unique visitors.

statements made were disseminated via these other channels. Therefore, these sources of dissemination are **not** included in the count of unique daily visitors.

c. In my analysis, I did not attempt to measure face-to-face dissemination that may have occurred after individuals may have read articles containing the defaming statements, which would increase the count. Therefore, this is **not** included in my calculations.

d. Naturally, I could not access certain online sources where the defaming statements may have been disseminated (e.g., email messages, social media direct messages, articles behind firewalls, etc.). Therefore, these numbers are **not** included in my calculations.

e. There are sites that possibly had hosted articles containing the defaming statements where the articles have been removed before I conducted my search. Therefore, these articles and associated traffic are **not** included in my calculations.

f. Some sites hosted the articles containing the defaming statements where the visitor data is not determinable or where I could not confirm the number of visitors. In these cases, even though I had confirmed the site had posted one or more articles containing the defaming statements, I did **not** include these sites in my calculation of the unique daily visitors.

g. Many sites published multiple articles on multiple days that quoted or referenced the statements; however, I did not use these multiple publication dates from the same site in my calculations of unique visitor traffic. If a domain published only one article containing the statements, then I directly used the unique daily visitors' number. If a domain published multiple articles concerning the statements, I did not count the traffic for the subsequent articles containing the statements made, even though research shows that repeat traffic to websites is

generally only about 30%⁵³, meaning that 70% of the traffic would be unique. However, I was not comfortable using this figure given the nature of these sites, which might have higher repeat visitors day-to-day, or a visitor could have seen the news article on another site⁵⁴. Therefore, I did **not** include visitors to multiple articles from the same site in my calculations.

h. I did not include articles that link to one of the articles containing the statements in my calculations of dissemination⁵⁵. Unless the article directly mentioned the statements, I did **not** include that article in my calculations, even if the links from these articles did contain the defaming statements.

i. I did **not** include in my analysis articles that were in non-English, even though it is reasonable to assume the defaming statement appeared in outlets in other languages.

j. I did **not** include the number of individuals who, after reading the articles, shared the articles or contents contained within those articles with others, which would include multiple individuals reading the same article at or about the same time at the same computer as well as all individuals who learned of the content of the articles from others who had read the articles.

k. I did **not** include articles that were primarily about this case, even if those articles did contain the defaming statements. There are numerous articles that primarily address

⁵³ Teevan, J., Adar, E., Jones, R. and Potts, M. (2006). History repeats itself: repeat queries in Yahoo's logs. In *Proceedings of the 29th annual international ACM SIGIR conference on Research and development in information retrieval* (SIGIR '06). ACM, New York, NY, USA, 703-704.

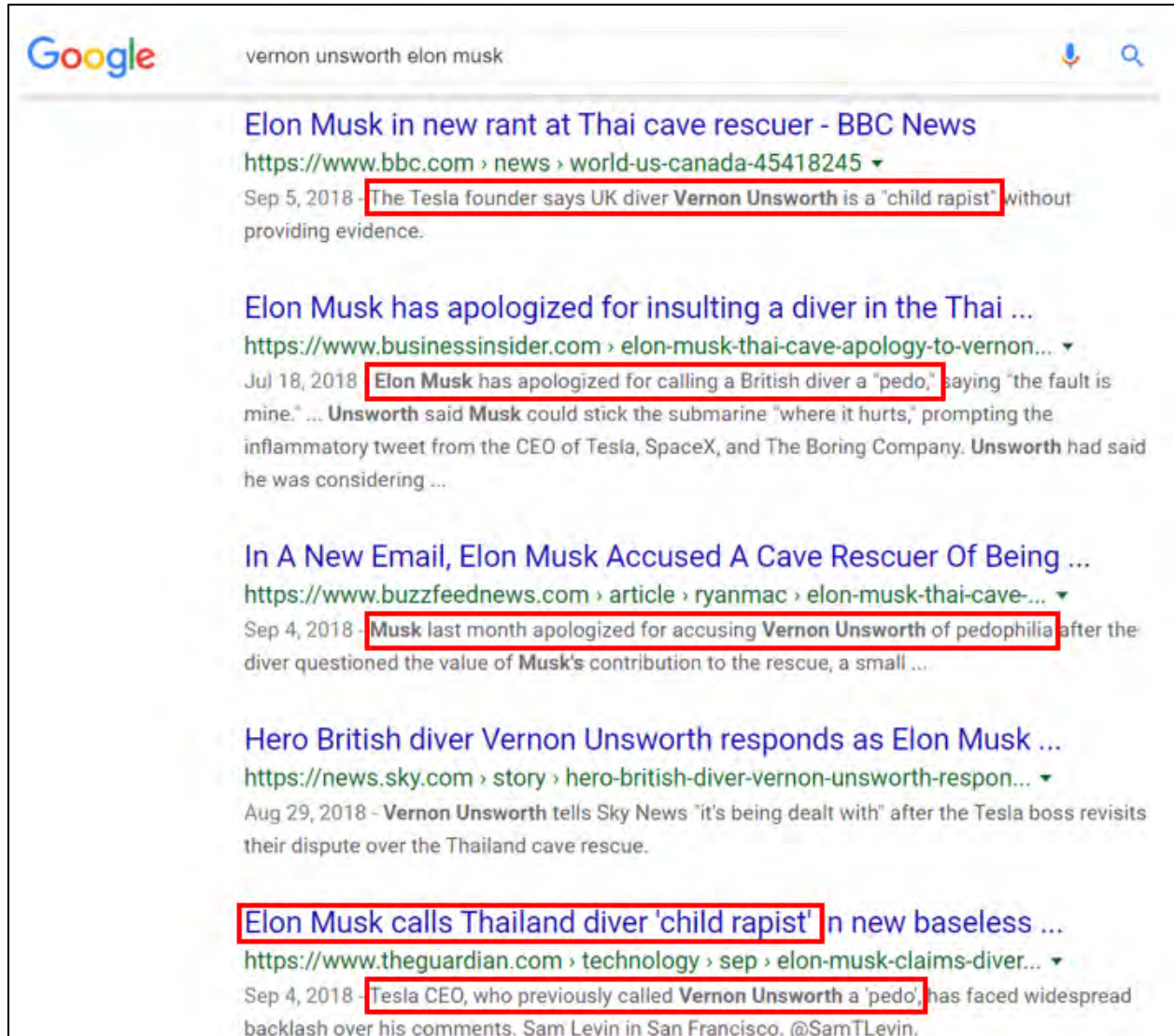
⁵⁴ This also appears in about the same level as repeat searchers. See, for example, Elise Shearer and Katerina Eva Masta (2018) News Use Across Social Media Platforms. Pew Research. <https://www.journalism.org/2018/09/10/news-use-across-social-media-platforms-2018/>

⁵⁵ As an example, here is an article, Quora <https://www.quora.com/What-do-you-think-of-Just-what-was-the-point-of-Elon-Musks-non-practical-submarine-rescue-effort-in-Thailand>, that does not directly mention the defaming statement, although there are links to articles that do contain the defaming statement. I did not include articles such as this in my analysis, even though the links themselves often contain the defaming statements. What do you think of "Just what was the point of Elon Musk's 'non-practical' submarine rescue effort in Thailand?", <https://www.quora.com/What-do-you-think-of-Just-what-was-the-point-of-Elon-Musks-non-practical-submarine-rescue-effort-in-Thailand>

this case and contain the defaming statements, often in article title (e.g., *Tesla's Musk is sued for calling Thai cave rescuer pedophile*, *Elon Musk asks judge to throw out lawsuit from UK diver he called a 'paedophile'*, *Elon Musk lawyers defend calling diver a pedophile as 'imaginative attack' protected by First Amendment*). As examples, using one query on Google (*musk unsworth lawsuit*), I located 104 articles from 104 separate domains concerning the case and containing the defaming statements. See **Appendix E** for a listing of article links.

l. I did **not** include the count of people who may have been searching and may have seen the defaming statements in the search results, without needing to visit the actual articles, which can easily happen, as shown in Figure 9.

m. **Figure 9: Example of search results with the defaming statements appearing in the result snippets, requiring no need to visit the website hosting the articles themselves using the query *vernon unsworth elon musk*. Red boxes added for highlighting the defaming statements.**



n. I did not include the dissemination of the articles containing the defaming statements directly to social media platforms, such as Facebook, Instagram, YouTube, Twitter, Reddit, Tumblr, etc., as some news outlets provide links on social media directly to the articles on their websites, so including this traffic would likely have resulted in excessive double counting⁵⁶. However, it is reasonable to assume that some people have seen the defaming statements only on these social media platforms, as the dissemination of the defaming statements

⁵⁶ It is reported that many people see a posting on a social media platform, which takes them to the news website. See, for example, Nicole Martin. How Social Media Has Changed How We Consume News. Forbes. Nov 30, 2018. <https://fentoninprint.com/16958/opinion/how-social-media-has-changed-the-way-we-consume-news/>

made by Mr. Musk via social media channels is considerable, as previously noted with Mr. Musk's Twitter account.

o. For example, a search on YouTube using the query *musk pedo* yielded 56 videos containing the defaming statements from numerous outlets around the world, with these 56 videos being viewed 2,365,872 times, as of the date that I filed this report⁵⁷. See Appendix E for a listing of these YouTube links.

p. As another example of the dissemination of the defaming statements on social media platforms, a search on Facebook using the query *musk pedo* yielded several posts and videos referencing the defaming statements. One CNN video post on Facebook has received 382,357 views⁵⁸, as of the date that I filed this report⁵⁹. A CTV⁶⁰ video post on Facebook has received 27,577 views⁶¹, as of the date that I filed this report.

q. Again, as I could not disassociate the traffic from the websites and the social media platform, the counts from social media platforms are **not** included in my analysis of people to whom the defaming statements were disseminated.

IX. SUMMARY OF OPINION

80. *The defaming statements made by Mr. Elon Musk asserting that Mr. Vernon Unsworth is a pedophile, is a child rapist, married a child, and is involved in child sex trafficking:*

- a. have been disseminated to at least 354 online media or other sites,*
- b. in 605 separate stories or articles,*

⁵⁷ YouTube Search Results, 13 Aug 2019

⁵⁸ Thai cave rescuer considering legal action against Elon Musk
<https://www.facebook.com/cnn/videos/10158557776651509/>

⁵⁹ Facebook Search Results, 13 Aug 2019, Facebook Video Search Results, 13 Aug 2019, Facebook Post Search Results, 13 Aug 2019

⁶⁰ CTV is a Canadian media company.

⁶¹ British diver could sue billionaire over deleted tweet <https://www.facebook.com/watch/?v=2169269729781608>

c. with more than 98 million⁶² potential daily unique visitors, since the statements were made to the date that I filed this report, inclusive.

81. **More likely than not, this is a conservative estimate.**

82. Right to Amend: Although I have had access to materials publicly available pertaining to claims in this dispute, I have not been able to review all such material by the deadline for completion of this report. I reserve the right to review and rely on any such material, including at the time of trial. I also reserve the right to issue a supplemental or an amended report if my review of such material results in any significant change or addition to my opinion.

⁶² The exact traffic number I arrived at is 98,362,092 potential daily unique visitors.

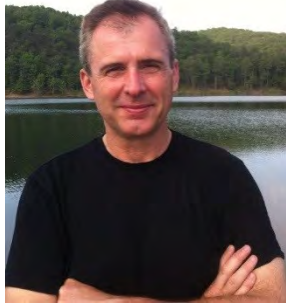
DATED: 13 September 2019

Respectfully submitted,

By _____

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Appendix A Curriculum Vitae of Jim Jansen



Adjunct Professor, College of Information Sciences and Technology, The Pennsylvania State University, University Park, Pennsylvania, USA.

Professor, College of Science and Engineering, Hamad Bin Khalifa University, Doha, Qatar

Principal Scientist
Qatar Computing Research Institute (QCRI),
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LinkedIn: www.linkedin.com/in/jjansen/

Blog: <http://jimjansen.blogspot.com/>

Research

Research Goal: Increase the effectiveness and efficiency for accomplishing information tasks by improving the interaction among people, information, and technology

Research Interests:

I study the uses and affordances of the Web for information searching and ecommerce, with a focus on interactions among the person, information, and technology. Current active research areas are **Web searching**, **information retrieval**, **keyword advertising**, **online marketing**, and **online social networking** within the ecommerce domain.

- **Sponsored search** and **keyword advertising**
- **Social media** as an information source
- **Information searching** and **Web information retrieval**

Short Bio:

Jim has authored or co-authored **250 or so research publications**, with articles appearing in a multi-disciplinary and extremely wide range of journals and conferences. He is author of the book, Understanding Sponsored Search: A Coverage of the Core Elements of Keyword Advertising (Cambridge University Press), author of the book Understanding User - Web Interactions Via Web Analytics, co-author of the book, Web Search: Public Searching of the Web, and co-editor of the book Handbook of Research on Weblog Analysis.

Jim is a principal scientist in the social computing group at the **Qatar Computing Research Institute**, Professor in the College of Science and Engineering, **Hamad bin Khalifa University**, and Adjunct Professor at the College of Information Sciences and Technology at **The Pennsylvania State University**. He is a graduate of **West Point** and has a PhD in computer science from **Texas A&M University**, along with master degrees from **Texas A&M** (computer science) and **Troy State** (international relations).

Research

Jim is **editor-in-chief** of the journal, Information Processing & Management (Elsevier), a member of the editorial boards of seven international journals, former editor-in-chief of the journal, Internet Research (Emerald), and he has served on the research committee for the Search Engine Marketing Professional Organization (SEMPO). He has received **several awards and honors**, including an ACM Research Award, six application development awards, and a university level teaching award, along with other writing, publishing, research, teaching, and leadership honors.

He has served as a Senior Fellow at the **Pew Research Center** with the Pew Internet and American Life Project and a university expert with the **National Ground Intelligence Center**.

He has done several **consulting projects** (log analysis, statistical analysis) and **expert witness** cases (patent litigation, civil litigation, and class action suits) in the areas of keyword advertising, web analytics, co-registration, domain parking, webpage access, webpage history, and online advertising click fraud.

Education

Ph.D. Computer Science, August 1999 - May 1996

Texas A&M University, College Station, Texas 77843

Dissertation: A Software Agent for Performance Improvement of an Existing Information Retrieval System

Advisor: Dr. Udo Pooch

M.CS. Computer Science, May 1996 - June 1994

Texas A&M University, College Station, Texas 77843

Research Area: Network Performance and Monitoring

M.S. International Relations, August 1994 - June 1992

Troy State University, European Division

Research Thesis: National Competitive Advantage

B.S. Computer Science, May 1985 - June 1981

United States Military Academy, West Point, New York 10996

Engineering Sequence: Electrical Engineering

Academic Appointments

Current - 2015 **Principal Scientist**, Qatar Computing Research Institute (QCRI), Hamad Bin Khalifa University, Doha, Qatar

Current - 2016 **Adjunct Professor**, College of Information Sciences and Technology, The Pennsylvania State University, University Park, PA, 16802, USA.

Academic Appointments

Current - 2017 **Professor**, College of Science and Engineering, Hamad bin Khalifa University, Doha, Qatar

2016 - 2014 **Full Professor**, College of Information Sciences and Technology, The Pennsylvania State University, University Park, PA, 16802, USA.

2014 - 2011 **University Researcher**, National Ground Intelligence Center, 2055 Boulders Road, Charlottesville, VA 22911

2014 - 2009 **Associate Professor**, College of Information Sciences and Technology, The Pennsylvania State University, University Park, PA, 16802, USA.

2012 - 2010 **Senior Fellow, Pew Internet and American Life Project, Pew Research Center, 1615 L Street, NW Suite 700 Washington, DC 20036**

2009 - 2003 **Assistant Professor**, College of Information Sciences and Technology, The Pennsylvania State University, University Park, PA, 16802, USA. (Previously, School of Information Sciences and Technology)

2003 - 2001 **Instructor**, School of Information Sciences and Technology, The Pennsylvania State University, University Park, PA, 16802, USA

2000 - 1999 **Lecturer**, Computer Science Program, University of Maryland (Asian Division), Seoul, 104-022, Republic of Korea

1999 - 1998 **Assistant Professor**, Department of Electrical Engineering and Computer Science, United States Military Academy, West Point, New York, 10996

1998 - 1996 **Lecturer**, Department of Electrical Engineering and Computer Science, United States Military Academy, West Point, New York, 10996, USA.

Honors and Awards

2016 **2016 President's Award for Engagement with Students**, The Pennsylvania State University, University Park, Pennsylvania.

2015 **Best Paper**: Liu, Z. and Jansen, B.J. (2015) *Subjective versus Objective Questions: Perception of Question Subjectivity in Social Q&A*. 2015 International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction (SBP15). Washington DC, p. 131-140. 31 Mar.-3 Apr.

Honors and Awards

- 2011 **Teaching and Learning with Technology Fellow** at Penn State (May 2011 – May 2012). Teaching research fellowship to develop subject-based learning apps that leverage cellular technology, the contextual (location-aware) attributes of mobile technology, and social media. See lt.its.psu.edu/2011/07/24/jim-jansen/
- 2011 **Paper Award:** The article, *The Seventeen Theoretical Constructs of Information Searching and Information Retrieval*, published in Journal of the American Society for Information Science and Technology selected as **John Wiley Best JASIST Paper Award 2011** (see http://www.asis.org/awards/jasis_paper.html).
- 2010 Emerald Literati Network **2010 Award for Excellence for Outstanding Reviewer** for the journal Internet Research (<http://info.emeraldinsight.com/authors/literati/index.htm>)
- 2008 **Best Paper**, Jansen, B.J., Zhang, M., and Schultz, C. (2008) *The Effect of Brand on the Evaluation of IT System Performance*. Proceedings of the Southern Association for Information Systems Conference, Richmond, VA, USA 13-15 March 2008
- 2008 Presented with a **Google Faculty Research Award** (\$50,000)
- 2007 Article selected as **Highly Commended Winner** at the Emerald Literati Network Awards for Excellence 2007. Spink, A. and Jansen, B.J. (2006) *Searching multiple federated content Web collections*, Online Information Review. 30(5), 485-495.
- 2004 Worldwide press coverage for book Web Search: Public Searching of the Web, co-authored with Dr. Amanda Spink. Including AP, Yahoo! News, CNN, MSN, and numerous other television, radio, Web, and print outlets.
- 2003 Worldwide press coverage and interviews 6/30/2003-7/3/2003 reference article: Jansen, B.J., and Spink, A. (2003) *An analysis of Web pages retrieved and viewed*, IC'03: Internet Computing: Web Mining Session, Las Vegas, 4-6 June, 2003. Including: BBC, Irish Radio, Washington Times, Psychology Today, and several U.S. radio stations.
- 2003 **ISI Most Highly Cited Articles in Field of Web Searching** for the manuscript Jansen, B.J., Spink, A., and Saracevic, T. (2000) *Real Life, Real Users, and Real Needs: A Study and Analysis of User Queries on the Web*, Information Processing & Management. 38(2), 207-227.

The article was identified in May 2003 by ISI Essential Science Indicators to be one of the most cited papers in the research area of Web Searching Behavior.
- 2002 **Highly Commended Article** invited for journal publication. Jansen, B.J. (2002) *Towards Implementing a Cognitive Model of Searching*, Proceedings of the E-Learning 2002 Conference (Web Track), Montreal, Canada. 15-19 October.
- 2002 **Two Crystal Awards of Excellence** for outstanding software development in the communications field.

Honors and Awards

2002 Worldwide press coverage and interviews 3/31/02- 4/5/02 reference article: Spink, A., Jansen, B.J., Wolfram, D., and Saracevic, T. (2002). *From e-sex to e-commerce: Web search changes*, IEEE Computer, 35(3), 133-135.

Including: Associated Press, BBC, CBC, MSNBC, Wall Street Journal, New York Times, PC World, CNN, Chinese People's Daily, Toronto Star, US News and World Report, San Francisco Chronicle, The Independent (UK), Business Week, Washington Post, Financial Times (UK), Information Week, Web, TV, newspaper (200+) and magazine media.

2002 **Award of Distinction** for interactive Web site development.

2002 **Two Awards of Excellence** for exceptional multimedia application development.

2002 US Army War College **Team of the Year** for outstanding contributions as team manager.

2001 **U.S. Army Visual Information Award** for multimedia development.

2000 **Highly Commended Award** by MCB Publishers, for: Spink, A., Bateman, J., and Jansen, B.J. (1999) *Searching the Web: A survey of Excite users*, Journal of Internet Research: Electronic Networking Applications and Policy, 9(2), 117-128.

1998 **Top Paper Award** for: Spink, A., Bateman, J., and Jansen, B.J. (1998) *Users' searching behavior on the Excite Web search engine*, 1999 World Conference on the WWW and Internet, Orlando, Florida.

1997 **ACM Student Research Award** for: Jansen, B.J. (1997) *Simulated Annealing for Query Results Ranking*, Computer Science Education Conference, San Jose, CA. 28 – 30 February.

1992 **Writing and Research Award**, U.S. Marine Corps University.

1992 **Research Award** from U.S. Army Trainer Journal

Books

Jansen, B.J. (2011). Understanding Sponsored Search: Coverage of the Core Elements of Keyword Advertising. Cambridge University Press: Cambridge, UK.

Jansen, B.J. (2009) Understanding User – Web Interactions via Web Analytics. Morgan-Claypool Lecture Series. Marchionini, G. (Ed). Morgan-Claypool: San Rafael, CA.

Jansen, B.J., Spink, A., and Taksa, I. Editors. (2009) Handbook of Research on Web Log Analysis, Hershey, PA: Idea Group Publishing.

Books

Spink, A., and **Jansen, B.J.** (2004) Web Search: Public Searching of the Web, Dordrecht: Kluwer Academic Publishers.

Parts of Books

Jansen, B.J. (2016) *Log Analysis*. Research Methods in Library and Information Science. Libraries Unlimited.

Mukherjee, P, Kozlek, B., Gyorke, A., Campese, C. and **Jansen, B.J.** (2014) *Leveraging Mobile Technology to Enhance Both Competition and Cooperation in an Undergraduate STEM Course*. Innovative Practices in Teaching Information Sciences and Technology: Experience Reports and Reflections. p. 167-178. New York: Springer.

Reddy, M. C., **Jansen, B.J.**, Spence, P. R. (2010) *Collaborative Information Behavior: Exploring Collaboration and Coordination During Information Seeking and Retrieval Activities*. Foster, J. (Ed.), Collaborative Information Behavior: User Engagement and Communication Sharing. p. 73 - 88. Hershey, PA: IGI.

Booth, D., and **Jansen, B.J.** (2009) *A review of methodologies for analyzing Websites*. In B.J. Jansen, A. Spink & I. Taksa (Eds.), Handbook of Web Log Analysis. p. 143-164. Hershey, PA: IGI.

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Taksa, I., Spink, A., and **Jansen, B.J.** (2009) *A review of methods in presented in the handbook of weblog analysis*. In B.J. Jansen, A. Spink & I. Taksa (Eds.), Handbook of Web Log Analysis. p. -358. Hershey, PA: IGI.

Zhang, M., and **Jansen, B.J.** (2009) *Using action-object pairs as a conceptual framework for transaction log analysis*. In B.J. Jansen, A. Spink & Taksa, I. (Eds.), Handbook of Web Log Analysis. p. 416-435. Hershey, PA: IGI.

Jansen, B.J. and Spink, A. (2008) *Logfile analysis*. In International Encyclopedia of Communication. Editors: Robin Mansell. Oxford: Blackwell Press. 6. p. 2730-2734.

Parts of Books

Jansen, B.J. and Spink, A. (2008) *How to Define Searching Sessions on Web Search Engines*. In Lecture Notes in Artificial Intelligence, LNAI 4198, Advances in Web Mining and Web Usage Analysis. Editors: Olfa Nasraoui, Osmar Zaiane, Myra Spiliopoulou, Bamshad Mobasher, Philip Yu, Brij Masand. p. 92 – 109. Berlin Heidelberg: Springer-Verlag.

Jansen, B.J., Berkheiser, W, Spink, A., and Pedersen, J. (2007) *How people search for governmental information on the Web*. In: Encyclopedia of Digital Government. Editors: Ari-Veikko Anttiroiko and Matti Malkia. p. 933-939. Hershey, PA: Idea Group Publishing.

Wolfe, R., **Jansen, B.J.**, and Spink, A. (2006) *Semantics and the medical Web: A review of barriers and breakthroughs in effective healthcare query*. In: Advances in Electronic Business. Vol. II. Editors: E. Li and D.C. Timon. p. 267-279. Hershey, PA: Idea Group Publishing.

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Refereed Journal Articles

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Yang, Y., **Jansen, B. J.** Yang, Y., Guo, X., Zeng, D. (2019) Keyword Optimization in Sponsored Search Advertising: A Multi-Level Computational Framework. IEEE Intelligence Systems. 34(1), 32-42.

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Coughlin, D., Campbell, M., and **Jansen, B.J.** (2015) *A Web Analytics Approach for Appraising Electronic Resources in Academic Libraries*. Journal of the Association for Information Science and Technology. 67(3), 518-534.

Ortiz-Cordova, A., Yang, Y., and **Jansen, B.J.** (2015) *External to Internal Search: Associating Searching on Search Engines with Searching on Sites*. Information Processing & Management. 51(5), 718–736.

Mukherjee, P, Kozlek, B., **Jansen, B.J.**, Gyorke, A., and Camplese, C. (2014) *Designing a Mobile and Socially Networked Learning Assistant for a University-level Keyword Advertising Course*. MERLOT Journal of Online Learning and Teaching. 10(3), 351-373.

Yang, Y., Qin, R., Zhang, J., Zeng, D., and **Jansen, B.J.** (2014) *Budget Planning for Coupled Campaigns in Sponsored Search*. International Journal of Electronic Commerce. 18(3), 39-66.

Mukherjee, P. and **Jansen, B.J.** (2014) *Performance Analysis of Keyword Advertising Campaign Using Gender-Brand Effect of Search Queries*. Electronic Commerce Research and Applications. 13(2), 139–149.

Jansen, B.J., Liu, Z., and Simon, Z. (2013) *The Effect of Ad Rank on Performance of Keyword Advertising Campaigns*. Journal of the American Society for Information Science and Technology. 64(10), 2115-2132.

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Jansen, B.J. (2002) *Towards Implementing a Cognitive Model of Searching*, Proceedings of the E-Learning 2002 Conference (Web Track), p. 493-521. Montreal, Canada, 15-19 October.

Jansen, B.J. (2002) *A Preliminary Mapping of Web Queries Using Existing Image Query Schemes*, Proceedings of the E-Learning 2002 Conference (Web Track), p. 485-492. Montreal, Canada, 15-19 October.

Jansen, B.J., Spink, A., and Pfaff, A. (2000) *A Linguistic Analysis of World Wide Web Queries*, Proceedings of the Annual Meeting of the American Society of Information Science, p. 169-176. Chicago, IL. 13-16 November.

Jansen, B.J., Spink, A., Goodrum, A., and Pfaff, A. (2000) *Web Query Structure: Implications for IR System Design*, Proceedings of the 4th World Multiconference on Systems, Cybernetics and Informatics, p. 50-55. Orlando, FL. 23-26 July.

Jansen, B.J. (1999) *A Software Agent for Performance Improvement of Existing Information Retrieval Systems*, Proceedings of the 1999 International ACM Conference on Intelligent User Interfaces, p. 122-123. Los Angeles, CA. 5-8 January.

Smith, T. L., Ruocco, A., and **Jansen, B.J.** (1999) *Digital Video in Education*, Proceedings of the ACM Computer Science Education Conference, p. 122-126. New Orleans, LA. 21-25 February.

Refereed Conference Proceedings

Jansen, B.J., Spink, A., and Saracevic, T. (1999) *The Use of Relevance Feedback on the Web: Implications for Web IR System Design*, 1999 World Conference on the WWW and Internet, Honolulu, Hawaii. 24-30 October.

Jansen, B.J. and Pooch, U. (1999) *Improving the Performance of Existing Information Retrieval Systems Using a Software Agent*, 5th International Conference on Information Systems Analysis and Synthesis, p. 58-60. Orlando, Florida. 31 July-4 August.

Adams, W. J., **Jansen, B.J.**, and Smith, T. L. (1999) *Planning, Building, and Using a Distributed Digital Library*, Third International Conference on Concepts in Library and Information Science, p. 10-18. Dubrovnik, Croatia. 23-26 May.

Smith, T. L., Wolfe, D., and **Jansen, B.J.** (1999) *Digital Video in a Twenty-First Century Classroom*, Proceedings of the Information Resources Management Association Conference, Hershey, PA. 16-19 May.

Adams, W. J. and **Jansen, B.J.** (1998) *Distributed Digital Library architecture: The Key to Success for Distance Learning*, Proceedings of the IEEE Conference on Research Issues in Data Engineering, p. 2-8. Orlando, Florida. 23-24 February.

Spink, A., Chang, C., Goz, A., and **Jansen, B.J.** (1998) *User' Interactions with the Excite Web Search Engine: A Query Reformulation and Relevance Feedback Analysis*, Proceedings of the Canadian Association of Information Science Conference, p. 342-354. Vancouver, Canada. 5 –10 June.

Jansen, B.J., Spink, A., and Saracevic, T. (1998) *Searchers, the Subjects They Search, and Sufficiency: A Study of a Large Sample of Excite Searches*, Proceedings of the 1998 World Conference on the WWW and Internet, Orlando, Florida.

Spink, A., Bateman, J., and **Jansen, B.J.** (1998) *Users' Searching Behavior on the Excite Web Search Engine*, 1998 World Conference on the WWW and Internet, Orlando, Florida, November.

Howard, R. and **Jansen, B.J.** (1998) *A proxy server experiment: an indication of the changing nature of the Web*, Proceedings of the Seventh International Conference on Computer Communications and Networks, p. 646-649. Lafayette, Louisiana. 12-15 November.

Adams, W. J., **Jansen, B.J.**, and Zoller, R. (1998) *Usability Measurements in an Undergraduate Programming Course*, Software Engineering Conference, Las Vegas, Nevada.

Jansen, B.J., Spink, A., and Saracevic, T. (1998) *Failure analysis in Query Construction: Data and Analysis from a Large Sample of Web Queries*, Proceedings of the 3rd ACM Conference on Digital Libraries, p. 289-290. Pittsburgh, PA. 23-26 July.

Spink, A., Bateman, J., and **Jansen, B.J.** (1998) *User's Searching Behavior on the EXCITE Web Search Engine*, Proceedings of the 19th National Online Meeting, p. 375-386. New York, NY. 12-14 May 1997.

Refereed Conference Proceedings

Adams, W. J., Howard, R., and **Jansen, B.J.** (1998) *Distributed Digital Libraries: The Key to Success for Distance Learning*, Computers and Technology in Education, 1 -5 May. Cancun, Mexico.

Jansen, B.J. (1997) *An Information Retrieval Application for Simulated Annealing*, Proceedings of the 2nd ACM Conference on Digital Libraries, p. 259-260. Philadelphia, PA. 25-28 July.

Paper Award

Jansen, B.J. (1997) *Simulated Annealing for Query Results Ranking*, Computer Science Education Conference, San Jose, CA. 28 – 30 February.

Spink, A., Burkett, L., Spaid, N., Bateman, J., and **Jansen, B.J.** (1997) *Why Users Search the World Wide Web (WWW): The EXCITE Study*, First Internet Librarian Conference, Monterey, CA. 16-18 November.

Adams, W. J. and **Jansen, B.J.** (1997) *Information Technology and the Classroom of the Future*, Proceedings of the Society for Information Technology in Education Conference, Orlando, Florida. 7 May.

Hamilton, J. A. and **Jansen, B.J.** (1997) *Tactical Network Simulation in the US Army*, Simulation Multi-Conference, Atlanta, Georgia. January.

Jansen, B.J. and Hamilton, J. A. (1997) *Modeling and Simulating an Army Information Support Structure*, Simulation Multi-Conference, Atlanta, Georgia. January.

Papers Presented at Technical and Professional Meetings

Jansen, B.J., Jung, S.G., Salminen, J., An, J. and Kwak, H. (2017) Social Analytics Data for Identifying Customer Segments for Online News Media. The Third International Workshop on Online Social Networks Technologies, 2017 IEEE/ACS 14th International Conference on Computer Systems and Applications (AICCSA2017). 30 Oct.-3 Nov. Hammamet, Tunisia.

Salminen, J., Sarlin, P., Olkkonen, R., and **Jansen, B.J.** (2017) *Who does what in marketing? Toward an understanding of marketer-machine interaction*, Studying Users Perceptions and Experiences with Algorithms Workshop, The 11th International AAAI Conference on Web and Social Media (ICWSM17). Montreal, Canada. 15-18 May.

An, J., Cho, H.Y., Kwak, H., and **Jansen, B.J.** (2016) *Towards Automatic Persona Generation Using Social Media*. The Third International Symposium on Social Networks Analysis, Management and Security (SNAMS 2016), The 4th International Conference on Future Internet of Things and Cloud. p. 206-211. 22-24 August.

Papers Presented at Technical and Professional Meetings

Mukherjee, P. and **Jansen, B.J.** (2016) *The Changing Nature of Viewership: Formality of Social Media Conversations*. Workshop on Following user pathways: Using cross platform and mixed methods analysis in social media studies. ACM Conference on Human Factors in Computing Systems (CHI2016), San Jose, CA, USA, 7-12 May.

Kwon, S., Abbar, S. and **Jansen, B.J.** (2016) *Identifying Virality Attributes of Arabic Language News Articles*. Qatar Foundation Annual Research Conference 2016 (ARC'16), Doha, Qatar. 22 March.

An, J., , Kwan, H., Cho, H., Hassen, M.Z., and **Jansen, B.J.** (2016) *Efforts Towards Automatically Generating Personas in Real-time Using Actual User Data*. Qatar Foundation Annual Research Conference 2016 (ARC'16), Doha, Qatar. 22 March.

Mukherjee, P. and **Jansen, B.J.** (2015) *Correlation of Brand Mentions in Social Media and Web Searching Before and After Real Life Events: Phase Analysis of Social Media and Search Data for Super Bowl 2015 Commercials*. 1st International Workshop on Event Analytics using Social Media Data at The IEEE International Conference on Data Mining series (ICDM 2015), Atlantic City, New Jersey, USA, 14 Nov.

Mukherjee, P. and **Jansen, B.J.** (2015) *Analyzing the Social Soundtrack From Second Screens Before, During, and After Real-life Events*. The First International Workshop on Online Social Networks Technologies, 2015 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), Dead Sea, Jordan. 3-5 Nov.

Jansen, B.J., Wong, J. S., Jablokow, K.W., Divinsky, A., Liu, Z., and Pursel, B. (2014) *Classifying MOOC Discussion Forum Posts as Information Seeking Interactions and Levels of Cognitive Learning*. Workshop on Learning at Scale at ACM CHI Conference on Human Factors in Computing Systems, (CHI 2014), Toronto, CA. 26 April - 1 May.

Liu, Z. and **Jansen, B.J.** (2012) *Factors Influencing the Response Rate in Social Question and Answering Behavior*. Workshop on Social Media Question Asking at 16th ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2013). 23-27 February. San Antonio, Texas.

Jansen, B.J. (2012) *Gender Demographic Targeting in Sponsored Search*. INFORMS International 2012. 24-27 June. Beijing, China.

Jansen, B.J. (2012) *Using Mobile Apps to Enhance Classroom Learning*. Teaching and Learning with Technology, University Park, PA, 24 March

Rosso, M. and **Jansen, B.J.** (2010) *Smart Marketing or Bait & Switch? Competitors' Brands as Keywords in Online Advertising*. 4th Workshop on Information Credibility on the Web (WICOW 2010). World Wide Web Conference (WWW 2010), Raleigh, NC. 26-30 April.

Jansen, B.J. (2009) *System Controlled Assistance for Improving Search Performance*. Human-Computer Interaction and Information Retrieval. Workshop. Washington, DC. 23 October.

Papers Presented at Technical and Professional Meetings

Jansen, B.J., Zhang, M, Sobel, K, and Chowdury, A, (2009) *The Commercial Impact of Social Mediating Technologies: Micro-blogging as Online Word-of-Mouth Branding*. ACM Conference on Computer Human Interaction (CHI2009). Boston, Massachusetts. 4 - 9 April.

Neale, L., Hunter, L., **Jansen, B.J.**, Murphy, J. (2008) *The Google Online Marketing Challenge: A Global Teaching and Learning Initiative*. 2008 Society for Marketing Advances Annual Conference. 4-9 November. St Petersburg, Florida.

Jansen, B.J., Rosso, M., Russell, D., and Detlor, B. (2008) *The Google Online Marketing Challenge: A Multi-Disciplinary Global Teaching and Learning Initiative Using Sponsored Search*. 2008 Annual Meeting of the American Society for Information Science and Technology. 24-29 October Columbus, Ohio.

Jansen, B.J. (2008). *Viewing Searching Systems as Learning Systems*. Second Workshop on Human-Computer Interaction and Information Retrieval. 23 October. Redmond, Washington.

Murphy, J., Canhoto, A., Hofacker, C., Hunter, L., **Jansen, B.J.**, and Voorhees, C. (2008) *The Google Online Marketing Challenge: A Global Teaching and Learning Initiative*. 2008 American Marketing Association Summer Marketing Educators' Conference. 8-11 August. San Diego, California.

Reddy, M. and **Jansen, B.J.** (2008) *Learning about Potential Users of Collaborative Information Retrieval Systems*. Workshop on Collaborative Information Retrieval, Joint Conference on Digital Libraries (JCDL 2008). 19 June. Pittsburgh, Pennsylvania.

Jansen, B.J., Bhavnani, S., Murray, G. C., Spink, A. and Wolfram, D. (2007) *Web Log Analysis Panel*, 2007 Annual Meeting of the American Society for Information Science and Technology. Milwaukee, Wisconsin. 18-25 October.

Spink, A. and **Jansen, B.J.** (2007) *Web Research - Results from Large-Scale Web Data Analysis*, ARC Research Network Enterprise Information Infrastructure Workshop on Data From the Field. Sydney, Australia. 24th May.

Jansen, B.J. and Spink, A. (2007) *The Effect on Click-through of Combining Sponsored and Non-Sponsored Search Engine Results in a Single Listing*, 16th International World Wide Web Conference (WWW2007) Workshop on Sponsored Search Auctions. Banff, Canada. 8-12 May.

Paper: http://opim.wharton.upenn.edu/ssa3/pdf/submission_96.pdf

Jansen, B.J. (2007) *Preserving the Collective Expressions of the Human Consciences*, 16th International World Wide Web Conference (WWW2007) Workshop on Query Log Analysis: Social and Technical Challenges. Banff, Canada. 8-12 May.

Paper: http://www2007.org/workshops/paper_58.pdf

Slides: <http://querylogs2007.webir.org/slides/JimJansenQL2007.pdf>

Papers Presented at Technical and Professional Meetings

Jansen, B.J., Smith, B., and Booth, D. (2007) *Learning as a Paradigm for Understanding Exploratory Search*, Conference on Human Factors in Computing Systems (SIGCHI), Workshop on Exploratory Search Interfaces. San Jose, California. 28 April - 3 May.

Spink, A., Alvarado-Albertorio, F., and **Jansen, B.J.** (2007) *Web Search Behavior: What is Normative?*, Society of Australasian Social Psychologists (SASP) Conference. Brisbane, Australia. 12 – 15 April.

Jansen, B.J. and Spink, A. (2006) *Characteristics of searching on Web meta-search engines*, American Society for Information Science and Technology: Human Computer Interaction Workshop. Austin, TX. 3-9 November.

Jansen, B.J. (2006) *Implications of Trust of Sponsored Links for E-commerce Web Searching*, 6th Annual SIG-USE Research Symposium. American Society for Information Science and Technology (ASIS&T) Annual Conference. Austin, TX. 4 November.

Spink, A. and **Jansen, B.J.** (2006) *Web Searching: Trends and Impacts*, Oxford Internet Institute International Symposium. Journal of Information, Communication, Society: 10th Anniversary International Symposium. University of York, UK. 20 – 22 September.
<http://www.york.ac.uk/res/siru/icsspinketal.htm>

Jansen, B.J., Spink, A., Kathura, V., and Koshman, S. (2006) *How to Define Searching Sessions on Web Search Engines*, Workshop on Web Mining and Web Usage Analysis. The 12th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2006). Philadelphia, Pennsylvania. 20-23 August.

Jansen, B.J. (2006) *Adversarial Information Retrieval Aspects of Sponsored Search*, Second International Workshop on Adversarial Information Retrieval on the Web (AIRWeb 2006). The 29th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval (SIGIR2006). Seattle, Washington. 6-11 August.

Jansen, B.J., Ramadoss, R. Zhang, M., and Zang, N. (2006) *Wrapper: An Application for Evaluating Exploratory Searching Outside of the Lab*, SIGIR 2006 Workshop on Evaluating Exploratory Search Systems. The 29th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval (SIGIR2006). Seattle, Washington. 6-11 August.

Buzikashvili, N. and **Jansen, B.J.** (2006) *Limits of the Web Log Analysis Artifacts*, Workshop on Logging Traces of Web Activity: The Mechanics of Data Collection, The Fifteenth International World Wide Web Conference (WWW 2006). Edinburgh, Scotland. 22-26 May.

Jansen, B.J. (2006) *The Wrapper: An Open Source Application for Logging User – System Interactions during Searching Studies*, Workshop on Logging Traces of Web Activity: The Mechanics of Data Collection. The Fifteenth International World Wide Web Conference (WWW 2006). Edinburgh, Scotland. 22-26 May.

Papers Presented at Technical and Professional Meetings

Jansen, B.J., Rieh, S.Y., Spink, A., Wang, P., and Wolfram, D. (2005) *Panel Presentation: Internet Usage Transaction Log Studies: The Next Generation*, American Society for Information Science & Technology 2005 Annual Meeting. Charlotte, North Carolina. 28 October – 2 November.

Toms, E.L., **Jansen, B.J.**, and Muresan, G. (2005) *Panel Presentation: Evaluating Success in Search Systems*, American Society for Information Science & Technology 2005 Annual Meeting. Charlotte, North Carolina. 28 October – 2 November.

Jansen, B.J. (2005) *A Multi-Disciplinary, Multi-Level, and Multi-Spectrum View of Interaction*, The First Conference of the i-School Community: Bridging Disciplines to Confront Grand Challenges. 28-30 September 2005, State College, PA.

Jansen, B.J. and Resnick, M. (2005) *Examining Searcher Perceptions of and Interactions with Sponsored Results*, Workshop on Sponsored Search Auctions, The Sixth ACM Conference on Electronic Commerce (EC'05). Vancouver, Canada. 5-8 June.

Jansen, B.J. (2005) *Automated Searching Assistance for Exploratory Search*, Seminar on Exploratory Search Interfaces at the University of Maryland sponsored by the Human-Computer Interaction (HCI) Lab. College Park, Maryland. 2 June.

Shingle, A. **Jansen, B.J.**, and Spink, A. (2005) *Television Advertising of Prescription Drugs: A Study of Its Effect on Consumer Web Searching*, IEEE 6th International Conference on Information Technology, Coding and Computing. Las Vegas, Nevada, 11-13 April, 2005.

Jansen, B.J., Spink, A., and Pederson, J. (2004) *An Analysis of Multimedia Searching on AltaVista*, Presentation at Workshop on User Searching, World Wide Web Conference, New York, New York, 18 May 2004.

De Ycaza, S., Doran, S., Eastman, C., and **Jansen, B.J.** (2003) *Nutritional Information on the Web: An Analysis of Information Sought and Information Provided*, South Carolina Nutrition Research Summit, Columbia, SC. 17 October 2004.

Jansen, B.J. (1998) *An Analysis of User Queries on the Web: The Implications for the Design of Military Information Retrieval Systems*, Fifth Annual US Army Research Laboratory and United States Military Academy Technical Symposium, West Point, New York.

Jansen, B.J. (1997) *Simulated Annealing in Information Retrieval*, Fifth Annual US Army Research Laboratory and United States Military Academy Technical Symposium, West Point, New York.

Adams, W. J. and **Jansen, B.J.** (1997) *Integrating Usability Design Principles into an Existing Engineering Curriculum*, The American Society for Engineering Education National Conference, Milwaukee, Wisconsin.

Jansen, B.J. and Adams, W. L. (1997) *Integrating User Centered Design into an Introductory Engineering Course*, American Society for Engineering Education Zone 1 Meeting, West Point, New York.

Scholarly Reports

Jansen, B.J. (2011) *The civic and community engagement of religiously active Americans*. Pew Internet & American Life Project, Pew Research Center. 13 December.

<http://pewinternet.org/Reports/2011/Social-side-of-religious.aspx>

Jansen, B.J. (2010) *65% of Internet Users Have Paid for Online Content*. Pew Internet & American Life Project, Pew Research Center. 30 December.

<http://www.pewinternet.org/Reports/2010/Paying-for-Content.aspx>

Jansen, B.J. (2010) *Use of the internet by higher income households*. Pew Internet & American Life Project, Pew Research Center. 24 November.

<http://www.pewinternet.org/Reports/2010/Better-off-households.aspx>

Jansen, B.J. (2010) *Online Product Research*. Pew Internet & American Life Project, Pew Research Center. 29 September.

<http://pewinternet.org/Reports/2010/Online-Product-Research.aspx>

Funded Projects, Grants, Commissions, and Contracts

2015 - 2014	Title: Web Analytics for a Research University Library Granting Agency: Penn State, University Library Total Amount: \$19,717 Role: Principal Investigator
2015 - 2013	Title: Exploring Scholarly Discourse in MOOC Discussion Forums Granting Agency: Penn State, Center for Online Innovation in Learning Total Amount: \$30,383 Role: Principal Investigator
2014 - 2010	Title: Broadband to Support SMEs in Pennsylvania Granting Agency: Commonwealth of Pennsylvania Total Amount: \$500,000 Role: Faculty Investigator (\$70,000)
2014 - 2010	Title: Semantic CiteSeerX Granting Agency: National Science Foundation Total Amount: \$1,100,000 Role: Principal Investigator (\$130,000)

<u>Funded Projects, Grants, Commissions, and Contracts</u>	
2011 - 2008	Title: Affective and Cognitive Factors Affecting the Evaluation of Search Engines by Users Granting Agency: Google Amount: \$50,000 Role: Principal Investigator
2011 - 2009	Title: Using Keyword Advertising for Economic and Workforce Development Granting Agency: The Pennsylvania State University Amount: \$25,000 Role: Principal Investigator
2011 - 2010	Title: Toolkits for Deployable Best Practices Granting Agency: Office of Naval Research STTR Phase II Total Amount: \$750,000 Role: Principal Investigator (\$87,500)
2011 - 2010	Title: RAPID: Text Message-based Infrastructure for Emergency Response Granting Agency: National Science Foundation Total Amount: \$75,000 Role: Principal Investigator (\$15,000)
2009 - 2008	Title: Toolkits for Deployable Best Practices Granting Agency: Office of Naval Research STTR Phase I Total Amount: \$100,000 Role: Principal Investigator (\$15,000)
2009 - 2007	Title: REU Supplement for CRI: Collaborative: Next Generation CiteSeer Granting Agency: National Science Foundation Amount: \$12,000 Role: Co-Principal Investigator (\$12,000).
2009 - 2006	Title: Synchronized Interactions Among Users, Systems, and Information Granting Agency: Air Force Research Lab Amount: \$463,000 Role: Principal Investigator (\$463,000).
2008 - 2005	Title: The Next Generation CiteSeer Granting Agency: National Science Foundation Amount: approximately \$1,444,984 Role: Co-principal Investigator with Dr. Lee Giles, Dr. Susan Gauch, and Dr. Jack Carroll (\$48,701)

<u>Funded Projects, Grants, Commissions, and Contracts</u>	
2009 - 2007	Title: Triggers in Collaborative Information Searching Granting Agency: National Science Foundation Amount: \$76,000 Role: Co-principal Investigator with Dr. Madhu Reddy (\$18,119)
2009 - 2008	Title: REU Supplement for Triggers in Collaborative Information Searching Granting Agency: National Science Foundation Amount: \$12,000 Role: Co-principal Investigator with Dr. Madhu Reddy (\$6,000)
2007 - 2006	Title: REU Supplement for CRI: Collaborative: Next Generation CiteSeer Granting Agency: National Science Foundation Amount: \$9,000 Role: Co-Principal Investigator (\$9,000).
2005 - 2004	Title: Design of Tools for Information Seeking, Management, and Analysis for a Lessons Learned Knowledge System Granting Agency: US Marine Corps Research University Amount: \$500,000 Role: Co-Principal Investigator (\$83,957)
2005	Title: Knowledge Management Granting Agency: US. Department of Defense, Defense Threat Reduction Agency (DTRA) Amount: \$625,832 Role: Co-Principal Investigator (\$18,439).
2006 - 2005	Title: REU Supplement for CRI: Collaborative: Next Generation CiteSeer Granting Agency: National Science Foundation Amount: \$6,000 Role: Co-Principal Investigator (\$6,000).
1998 -1996	Title: The use of software agents in information retrieval. Granting Agency: Army Research Laboratory Amount: \$68,000 Role: Principal Investigator (\$68,000)
1998	Title: Information searching on Web Search Engines Granting Agency: Army Research Laboratory Amount: \$5,000 Role: Principal Investigator (\$5,000)

Funded Projects, Grants, Commissions, and Contracts

1997	Title: Software agents for information retrieval. Granting Agency: Army Research Laboratory Amount: \$5,000 Role: Principal Investigator (\$5,000)
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Software Developed

Software Development: Client-side Application for Automated Searching: that automates searching tactics via user implicit feedback.

Software Development: Application for Real-time Evaluation of Search Engine Performance: that automates the evaluation of Web search engines.

Teaching

At *Hamad Bin Khalifa University* (Current – 2017), College of Science and Engineering, I developed ICT632 Advanced Applications of the Web and Internet, a course that I proposed and designed. A breath course, divided into eights modules, covering (a) web fundamentals, (b) ecommerce, (c) search, (d) social media, (e) cloud computing, (f) web analytics, (g) marketing analysis, and (h) mobile. An assignment due every week. 8 individual assignment. 7 team assignments. I designed the course so the students used the technologies they were studying.

At *The Pennsylvania State University* (2016 – 2002), I have taught a variety of information technology-related courses, including the undergraduate capstone project leadership course, the introductory freshman course, online marketing, graduate seminar course, and a graduate course on human information interaction. Additionally, I have mentored students in a variety of independent studies and have been on several course development committees.

At The Pennsylvania State University (2016 – 2002):

- Committee Lead, curriculum development team for a college-level executive masters program.
- Committee Lead, curriculum development committee for re-design of the undergraduate senior – level capstone course.
- Committee Member, curriculum development team for re-design of the undergraduate freshmen level introductory course.
- Committee Member, curriculum development team for the establishment of a university-wide Business Analytics minor
- Faculty Lead, development team for the establishment of a university-wide professional library certification program

Teaching

- Committee Member, curriculum development team for the establishment of a college Entrepreneurship minor
- Course Development: (1) undergraduate capstone course in IT project management, (2) graduate course in information searching, (3) undergraduate course in keyword advertising, (4) graduate course in web analytics, (5) undergraduate course in entrepreneurship technology

2015 – Mentor for one team in the **Google Final 15 in The Google Online Marketing Challenge** for 2014. The team was in the top fifteen from 4,000 teams from around the world (top 0.4%).

Mentor for team in the **Google Non-profit Challenge** for 2014. The teams were the top more than 4,000 teams from around the world (top 0.4%).

2014 – Mentor for three teams in the **Global Final 15 in The Google Online Marketing Challenge** for 2013. The teams were in the top fifteen from 4,000 teams from around the world (top 0.4%).

Mentor for two teams in the **Google Media Marketing Challenge** for 2013. The teams were the top more than 4,000 teams from around the world (top 0.4%).

2013 – Mentor for one team in the **Global Final 15 in The Google Online Marketing Challenge** for 2012. The team was in the top fifteen from more than 4,000 teams from around the world (top 0.4%).

2012 – Mentor for three teams in the **Global Final 15 in The Google Online Marketing Challenge** for 2011. The three teams were in the top fifteen from 4,000 teams from around the world (top 0.4%).

2010 – Mentor for two teams in the **Global Final 15 in The Google Online Marketing Challenge** for 2009. The two teams were in the top fifteen from 3,000+ teams from around the world (top 0.5%).

Had eight other teams get honorable mention by placing in the Top 100 Global Teams and five other teams place in the Top 10% of all teams.

2010 – Mentor for two student teams that took 1st and 3rd in the **Penn State IdeaPitch Competition**, which is a university wide Penn State entrepreneurship competition.

2009 – Mentor for three teams in the **Global Final 15 in The Google Online Marketing Challenge** for 2009. The three teams were in the top fifteen from 2,107 teams from around the world.

Had seven other teams get honorable mention by placing in the top 50 teams in the Americas region.

2009 - **Schreyer Honors College Teaching Grant** Recipient for developing multi-disciplinary keyword advertising, marketing, and technology course.

Teaching

2008 – Mentor for the **winning team in the Americas region in The Google Online Marketing Challenge for 2008**. One of the top four teams from 1,620 teams from around the world. Won a trip to the GooglePlex with the students, plus the students all won laptops.

Had two other teams get honorable mention by placing in the top 50 teams in the Americas region.

2008 – Selected as **Faculty Marshall** by Student Marshall of Computer Science and Engineering Department, College of Engineering, The Pennsylvania State University as faculty member who had the biggest impact on student's academic career

2008 – **Professor of the Year nominee** for College of Information Sciences and Technology, The Pennsylvania State University, 16802

2003 Selected as **Faculty Marshall** by Student Marshall of School of Information Sciences and Technology, The Pennsylvania State University as faculty member who had the biggest impact on student's academic career

Guest lecturer for a month (2000) at the *Korean Military Academy* in Seoul, Republic of Korea.

At the *University of Maryland* (Asian Division) (2000 – 1999), taught courses on Web/Internet and multimedia design.

At the *United States Military Academy* (1999 – 1996), I taught several computer science-related courses including introductory programming, advanced programming, micro-computing, and databases. Also, mentored students in a variety of independent studies.

As executive officer for the department (1999 – mid 1997), was responsible for course scheduling, instructor assignments, classroom allocation, student counseling, as well as many other duties concerning the day-to-day operation of the department.

Membership on Degree Committees

The Pennsylvania State University
College of Information Sciences and Technology

Chair or Co-Chair

Partha Mukherjee (Committee Chair) (PhD degree conferred in 2016)
Alex Brown (Committee Chair) (M.S. degree conferred in 2016)
Zhe Liu (Committee Chair) (PhD degree conferred in 2014)
Dan Coughlin (Committee Chair) (PhD degree conferred in 2014)
Carolyn Hafernik (Committee Chair) (M.S. degree conferred in 2013)
Adan Ortiz-Cordova (Committee Chair) (M.S. degree conferred in 2013)
Jian-Syuan Wong (Committee Chair [until 2016]) (PhD degree expected in 2018)
Steve Carmen (Committee Chair [until 2013]) (M.S. degree conferred in 2013)

Membership on Degree Committees

Kathleen Moore (Committee Chair [until 2012]) (PhD degree expected in 2015)
Mimi Zhang (Committee Chair) (PhD degree conferred in 2010)
Mike Hills (Committee Chair) (PhD degree conferred in 2010)
Hyun-Woo Kim (Committee Co-Chair) (M.S. degree conferred in 2010)
Young Shin Kim (Committee Co-Chair) (M.S. degree conferred in 2010)

Committee Member

Eric McMillan (Committee Member) (PhD degree expected in 2017)
Nathan McNeese (Committee Member) (PhD degree conferred in 2014)
Patricia Spence (Committee Member) (PhD degree conferred in 2013)
Arvind Karunakaran (Committee Member) (M.S. degree conferred in 2011)
Yusuf Raza (Committee Member) (M.S. degree conferred in 2009)
Sharoda Paul (Committee Member) (PhD degree conferred in 2009)
Allison Morgan (Committee Member) (PhD degree conferred in 2008)
Mithu Bhattacharya (Candidacy Committee Member, 2005)
Scott Robertson (Candidacy Committee Chair, 2004)

The Pennsylvania State University

Workforce Education and Development Program, College of Education

John Dolan (Committee Co-Chair [until 2012]) (PhD degree expected in 2013)

The Pennsylvania State University

School of Hospitality and Management

Lu Zhang (Committee Co-Chair) (M.S. degree conferred in 2009)

The Pennsylvania State University

Department of Industrial and Manufacturing Engineering

Himanshu Sharma (Committee Chair) (M.S. degree conferred in 2005)

Sourav Sengupta (Committee Chair) (M.S. degree conferred in 2005)

Ying Zhang (Committee Chair) (M.S. degree conferred in 2008)

The Pennsylvania State University

Department of Electrical Engineering

Vijay Mohan (Committee Co-Chair) (M.S. degree conferred in 2009)

Dheepak Ramaswamy (Committee Co-Chair) (M.S. degree conferred in 2009)

Ashish Kathuria (Committee Chair) (M.S. degree conferred in 2007)

The Pennsylvania State University

Department of Computer Science and Engineering

Yanjun Gao (Committee co-Chair)[until 2017](PhD degree expected in 2018)

Chandrika Gopalakrishna (Committee Chair) (M.S. degree conferred in 2008)

The University of Pittsburgh

School of Information Sciences

Department of Library and Information Science

Zhen Yue (Committee Member) (Ph.D. degree conferred in 2014)

Minsoo Park (Committee Member) (Ph.D. degree conferred in 2008)

Rutgers, the State University of New Jersey

Membership on Degree Committees

School of Communication, Information and Library Studies
Yuelin Lee (Committee Member) (Ph.D. degree conferred in 2008)

The Pennsylvania State University

Schreyer Honors College, thesis advising
Megan Krause (B.S. degree conferred 2107)
Allie Whitman (B.S. degree conferred 2106)
Adan Ortiz-Cordova (B.S. degree conferred 2011)
Bradley Shively (B.S. degree conferred 2010)
Kate Sobel (B.S. degree conferred 2010)
Steven Troxell (B.S. degree conferred in 2008)
Steven Clancy (B.S. degree conferred in 2007)
Paulo Molina (B.S. degree conferred in 2004)
Chris Catalano (B.S. degree conferred in 2004)
Andy Shingle (B.S. degree conferred in 2004)

Supervision of Other Undergraduate Research

Student	Degree	Major	University	Role
Arielle Amchin	BS	Marketing	Penn State	Research Mentor
Arun Das	BS	CS	Brown University	Research Mentor
Manisha	BS	MIS	Carnegie Mellon Qatar	Research Mentor
Dareddy				
Satyajit	BS	CS	Bharati Vidyapeeth	Research Mentor
Narayanan			University	
Will Berkheiser	BS	IST	Penn State	Work Study Mentor
				http://studentaid.psu.edu/types-of-aid/work-study-and-employment/work-study/about
Pat Bonner	BS	IST	Penn State	Research Mentor
Danielle Booth	BS	IST	Penn State	Research Mentor
Anna Brown	BS	IST	Penn State	Research Mentor
Nicole Butera	BS	Chemistry	Penn State	Women in Science and Engineering Research (WISER) Mentor
				http://pa.spacegrant.org/wiser
Chris Ciamacca	BS	IST	Penn State	Research Mentor
Karen Lee	BS	IST	Penn State	Research Mentor
Dana Kracow	BS	IST	Penn State	Research Mentor
Daehee Park	BS	IST	Penn State	Research Mentor
Melissa Reizner	BS	IST	Penn State	Research Mentor
Mitchell Rukat	BS	IST	Penn State	Research Mentor
Paul Rinaldi	BS	IST	Penn State	Research Mentor
Simone Schuster	BS	Advertising	Penn State	Research Mentor

Supervision of Other Undergraduate Research

Student	Degree	Major	University	Role
Laura Solomon	BS	Advertising	Penn State	Research Mentor
Meng Ting Sun	BS	Accounting	Penn State	Research Mentor
Pete Smith	BS	IST	Penn State	Research Mentor
Megan Tan	BS	Marketing	Penn State	Research Mentor
Courtney Weaver	BS	IST	Penn State	Research Mentor

Professional Service

Editorial Boards

Current – 2016	Editor-in-chief, <u>Information Processing & Management</u> (Elsevier)
Current – 2016	Editorial Board Member, <u>Information Discovery and Delivery</u>
Current – 2012	Editorial Advisory Board Member, <u>Social Networks</u>
Current – 2011	Editorial Advisory Board Member, <u>International Journal of Electronic Business</u>
Current – 2009	Editorial Advisory Board Member, <u>Journal of the American Society for Information Science and Technology</u>
Current – 2009	Editorial Advisory Board Member, <u>Future Internet</u>
Current – 2006	Editorial Panel, <u>International Journal of Internet Science</u>
Current – 2006	Editorial Advisory Board Member, <u>Information Research</u>
Current – 2004	Editorial Advisory Board Member, <u>Information Processing & Management</u>
2016 – 2011	Editor-in-chief, <u>Internet Research</u> (Emerald)
2011 - 2004	Editorial Advisory Board Member, <u>Journal of Internet Research</u>
2010 - 2004	Editorial Advisory Board Member, <u>Library and Information Science Journal</u>
2008 - 2004	Associate Editor (Book Reviews), <u>Information Processing & Management</u>
1996 –1998	Student Editor, <u>SIG Computer Human Interaction SIGCHI Bulletin</u>

Professional Service

Tenure Letters

- 2017 External Promotion Letter for faculty member of Department of Computer Information Systems, Jordan University of Science and Technology.
- 2016 External Promotion Letter Writer for faculty member of School of Information Sciences at the University of Pittsburgh
- 2016 External Promotion Letter Writer for faculty member of School of Business, McMaster University
- 2016 External Tenure Letter Writer for faculty member of Department of Library and Information Science, The Catholic University of America
- 2015 External Tenure Letter Writer for faculty member of School of Communication and Information, Rutgers University
- 2013 External Tenure Letter Writer for faculty member of College of Information Science and Technology, Drexel University
- 2013 External Tenure Letter Writer for faculty member of Graduate School of Management, University of Haifa
- 2012 External Tenure Letter Writer for faculty member of Faculty of Social Sciences, Bar-Ilan University
- 2012 External Tenure Letter Writer for faculty member of Henry B. Tippie College of Business, The University of Iowa
- 2012 External Tenure Letter Writer for faculty member of School of Business, North Carolina Central University
- 2010 External Tenure Letter Writer for faculty member of School of Business Administration, Bar Ilan University, Israel
- 2009 External Tenure Letter Writer for faculty member of Computer Information Systems Department, Bentley University

Professional Service

Ad hoc Reviewing

- 2016 Reviewer, IEEE Systems, Man and Cybernetics, Computers in Human Behavior, International Journal of Human Computer Interaction, Cornell Hospitality Review
- 2015 Reviewer, Transactions on Intelligent Systems and Technology, Journal of Organizational Computing and Electronic Commerce, European Journal of Marketing, Journal of Information Management, Transactions on Management Information Systems

Professional Service

Ad hoc Reviewing

- 2014 Reviewer, MIS Quarterly, Journal of Organizational Computing and Electronic Commerce, Computers in Human Behavior, Journal of Documentation, IEEE Systems, Man and Cybernetics, Tourism Management
- 2013 Reviewer, Technological Forecasting & Social Change, IEEE Systems, Man and Cybernetics, International Journal of Electronic Commerce, ACM Transactions on the Web, Journal of Interactive Marketing, Journal of Electronic Commerce Research (2x), Electronic Commerce Research, Communications of the Association for Information Systems, Transactions on Computer-Human Interaction, Information Research, Information and Management
- 2012 Reviewer, Electronic Commerce Research, International Journal of Information Management, Journal of Information Science, Communication Research, International Journal of Internet Science, Journal of Organizational Computing and Electronic Commerce, Social Science Computer Review, Information Research, MIS Quarterly, Journal of Organizational Computing and Electronic Commerce, Library and Information Science, IEEE Transactions on Multimedia, Advances in Human-Computer Interaction (2x), Journal of Theoretical and Applied Electronic Commerce Research (3x), ACM Transactions on Computer-Human Interaction
- 2011 Reviewer, IEEE Transactions on Multimedia, Information Technology and People, Journal of Computer-Mediated Communication (2x), Sage Publishing, Electronic Commerce Research, International Journal of Electronic Commerce, Journal of Interactive Marketing (2x), ACM Transactions on the Web, ACM Transactions on Computer-Human Interaction
- 2010 Reviewer, International Journal of Information Management (2x), ACM Transactions on the Web, Social Science Computing Review, MIS Quarterly, International Journal of Human-Computer Studies, PLoS One, Information Research, Netherlands Organisation for Scientific Research, Computing Surveys, Information Sciences, Future Internet, International Information and Library Review, International Journal of Internet Science, Behaviour & Information Technology, Journal of Media Economics

Reviewer Award

- 2010 Outstanding Reviewer for the Year, Internet Research
- 2009 Reviewer, The Computer Journal, ACM Transactions on the Web, International Journal of Electronic Commerce, Data & Knowledge Engineering Journal, ACM Transactions on Information Systems
- 2008 Reviewer, Journal of the Academy of Marketing Science, ACM Transactions on the Web, ACM Transactions on Information Systems, Decision Support Systems, New Media & Society, IEEE Internet Computing, Journal of Service Science and Management, IEEE Transactions on Professional Communication, International Journal of Knowledge Management Studies
- 2007 Reviewer, Simulation Modelling Practice and Theory, ACM Transactions on Information Systems

Professional Service

Ad hoc Reviewing

- 2006 Reviewer, Journal of Information Science, ACM Transactions on Information Systems
- 2005 Reviewer, Journal of Medical Internet Research, ACM Transactions on Information Systems
- 2005 Reviewer, IEEE Systems, Man and Cybernetics Journal, Computer Networks Journal
- 2004 Reviewer, Information Retrieval, Information Processing & Management, Journal of Web Engineering, Journal of Library & Information Science Research
- 2003 Reviewer, IEEE Proceedings-Software, Information Processing & Management
- 2002 Reviewer, Journal of Informing Science, Information Processing & Management, The World Wide Web Journal
- 2001 Reviewer, International Journal of Human Computer Studies, Information Processing & Management
- 1999 Reviewer, Information Processing & Management
- 1998 Reviewer, Computer Science Education Journal, Information Processing & Management

Professional Service

Grant Reviewing

- 2015 Reviewer, Qatar Research Program, Qatar Foundation
- 2014 Reviewer, grant panelist for National Science Foundation, CISE Research Infrastructure (CRI) program February 2014.
- 2013 Reviewer for grant proposal for Reviewer, American Association for the Advancement of Science (AAAS) Research Competitiveness Program Grant Proposal for funding through the Maine Technology Institute's Development Awards
- 2012 Reviewer, Army Research Lab Grant Proposal
- 2011 Reviewer, National Science Foundation Grant Proposal
- 2011 Reviewer, American Association for the Advancement of Science (AAAS) Research Competitiveness Program Grant Proposal for funding through the Maine Technology Institute's Development Awards
- 2010 Reviewer, Standard Research Grants program of the Social Sciences and Humanities Research Council of Canada (SSHRC) Grant Proposal

Professional Service

Grant Reviewing

- 2010 Reviewer for grant proposal for Reviewer, American Association for the Advancement of Science (AAAS) Research Competitiveness Program Grant Proposal for funding through the Maine Technology Institute's Development Awards
- 2008 Reviewer, Israel Science Foundation Grant Proposal
- 2007 Reviewer, Air Force Office of Scientific Research Grant Proposal
- 2007 Reviewer, Israel Science Foundation Grant Proposal
- 2004 Grant Reviewer, Arts and Humanities Research Board Grant Proposal, Whitefairs, Lewins Mead, Bristol, UK, BS1 2AE

Professional Service

Other

- 2016 Special Issue on Computational Advertising, IEEE Intelligent Systems. Guest Editors: Yanwu Yang, Huazhong University of Science and Technology, China; Yinghui Yang, University of California, Davis, US; Bernard J. Jansen, Qatar Computing Research Institute, HBKU; Mounia Lalmas, Yahoo Labs, UK.
- 2016 – 2007 Academic Panelist for The Google Online Marketing Challenge (<http://www.google.com/onlinechallenge/>). Based on registrations from more than 100 countries and more than 11,000 student teams, the Challenge may be the largest, worldwide educational course ever done.
- 2015 External Examiner for Spanish PhD thesis (Universitat Pompeu Fabra Barcelona)
- 2014 – 2013 Faculty Advisor for the Penn State Digital Marketing Association
- 2012 External Examiner for Australian PhD thesis (Queensland University of Technology)
- 2012 - 2011 Member, Research Committee, Search Engine Marketing Professional Organization (SEMPO)
- 2011 – 2009 Chair of the American Society for Information Science and Technology (ASIST) Information Science Education Committee
- 2010 Reviewer, Cambridge University Press book proposal
- 2010 Reviewer, Cambridge University Press book proposal
- 2010 External Examiner for Australian PhD thesis (University of Sydney)

Professional Service

Other

- 2009 – 2006 Chair of the American Society for Information Science and Technology (ASIST) Information Science Education Committee Dissertation Jury

- 2008 External Examiner for Australian PhD thesis (The University of New South Wales)

- 2008 External Examiner for Australian PhD thesis (The University of New South Wales)

- 2008 Guest Editor, **International Journal of Electronic Business (IJEB)**. Special Issue on Sponsored Search

- 2007 External Examiner for Australian PhD thesis (Monash University)

- 2007 Guest Editor, with Andy Edmond, Kirstie Hawkey, Melanie Kellar, and Don Turnbull. Journal of Web Engineering. Special Issue on Logging Traces of Web Activity

- 2006 Guest Editor, Bulletin of the American Society for Information Science and Technology. Special Issue on Paid Search, January 2006

- 1995 -1994 President, Computer Science Graduate Students Association, Texas A&M University, College Station, Texas.

Professional Service

Conference Activities

- 2016 Chair, Program Committee, The Second International Workshop on Online Social Networks Technologies (OSNT-2016), 13th ACS/IEEE International Conference on Computer Systems and Applications AICCSA 2016. 29 November - 2 December.

- 2016 Chair, Program Committee, The Third International Workshop on Social Networks Analysis, Management and Security (SNAMS - 2016), The 4th International Conference on Future Internet of Things and Cloud (FiCloud-2016), Vienna, Austria. 22-24 August.

- 2016 Reviewer, Papers and Posters, 79th Annual Meeting of the American Society for Information Science and Technology (ASIST 2016). Copenhagen, Denmark. 14-18 October.

- 2015 Program Committee, 7th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management, Lisbon, Portugal. 12-14 Nov.

- 2015 Meta-Reviewer, Papers and Posters, 78th Annual Meeting of the American Society for Information Science and Technology (ASIST 2015). St. Louis, Mo. 6-10 November.

- 2015 Reviewer, ACM CHI Conference on Human Factors in Computing Systems, Seoul, South Korea. 18-23 April.

Professional Service

Conference Activities

- 2014 Reviewer, Papers and Posters, 77th Annual Meeting of the American Society for Information Science and Technology (ASIST 2014). Montreal, Canada. 31 October-4 November.
- 2014 Program Committee: 3rd International Information Systems for Crisis Response and Management Conference (ISCRAM 2014), State College, PA. May 2014.
- 2014 Reviewer, ACM CHI Conference on Human Factors in Computing Systems, Toronto, Canada. 26 April – 1 May.
- 2013 Reviewer, Papers, 76th Annual Meeting of the American Society for Information Science and Technology (ASIST 2013). Montreal, Canada. 1-6 November.
- 2013 Reviewer, Posters, 76th Annual Meeting of the American Society for Information Science and Technology (ASIST 2013). Montreal, Canada. 1-6 November.
- 2013 Reviewer, 22nd International World Wide Web Conference (WWW 2013). 13th-17th, May, Rio de Janeiro, Brazil.
- 2013 Program Committee: European Conference on Information Retrieval (ECIR 2013) Workshop on Group Membership and Search (GRUMPS), 24 March, Moscow, Russia
- 2013 Program Committee: Sixth ACM WSDM Conference on Web Search and Data Mining Workshop on Web Search Click Data, 4-8 February, Rome, Italy.
- 2012 Program Committee: Fourth Information Interaction in Context Conference (IIIX 2012), Nijmegen, the Netherlands, 21-24 August 2012.
- 2011 Session Track Chair, 74th Annual Meeting of the American Society for Information Science and Technology (ASIST 2011). 9-13 October. New Orleans, LA.
- 2011 Program Committee, iConference. Toronto, Canada, 7-10 February.
- 2011 Program Committee: 33rd European Conference on Information Retrieval (ECIR 2011), Best Paper Committee, Dublin, Ireland, 19-21 April 2011
- 2011 Program Committee: 33rd European Conference on Information Retrieval (ECIR 2011), Workshop on Information Retrieval Over Query Sessions, Dublin, Ireland, 19-21 April 2011.
- 2011 Program Committee: 12th ACM Conference on Electronic Commerce (EC11). San Jose, CA. 5-9 June.
- 2011 Program Committee: Conference on Multilingual and Multimodal Information Access Evaluation (CLEF 2011). Amsterdam, the Netherlands, 19-22 September 2011.

Professional Service

Conference Activities

- 2011 Program Committee: 33rd European Conference on Information Retrieval (ECIR 2011). Dublin, Ireland. 18-21 April.
- 2010 Program Committee, American Society for Information Science and Technology Annual Meeting 2010. Pittsburgh, PA. 22-27 October.
- 2010 Program Committee: Conference on Multilingual and Multimodal Information Access Evaluation (CLEF 2010). Padua, Italy, 20-23 September.
- 2010 Program Committee: LREC 2010 Workshop on Web Logs and Question Answering (WLQA2010). Malta, 22 May.
- 2010 Program Committee: 32st European Conference on Information Retrieval (ECIR 2010). Keynes, UK. 28-31 March.
- 2009 Program Committee: Web Information and Data Management. 19th International Conference on Information and Knowledge Management (CIKM 2009). Hong Kong. 6 November.
- 2009 Program Committee: Workshop on the Analysis of System Logs. 22nd ACM Symposium on Operating Systems Principles. Big Sky, MT. 14 October.
- 2009 Program Committee: Collaborative Information Behavior. GROUP 2000. Sanibel Island, Florida. 10 May.
- 2009 Program Committee: Qualitative and Quantitative Methods in Libraries International Conference (QQML2009). Chania, Crete, Greece, 26-29 May.
- 2009 Program Committee: 31st European Conference on Information Retrieval (ECIR 2009). Toulouse, France. 6-9 April.
- 2009 Reviewer, ACM Conference on Computer Human Interaction 2009 (CHI 2009), Boston, MA, 4 – 9 April.
- 2008 Reviewer, 18th Conference on Information and Knowledge Management (CIKM 2008). Napa Valley, California. 26-30 October.
- 2008 Program Committee: Workshop on Human-Computer Interaction and Information Retrieval (HCIR 2008). Redmond, Washington. 23 October.
- 2008 Program Committee: 1st Information Interaction in Context Symposium (IiiX 2008). London, United Kingdom. 14-17 October.
- 2008 Program Committee: 2008 Ad Auctions Workshop. ACM Conference on Electronic Commerce in Chicago, IL. 8-9 July.

Professional Service

Conference Activities

- 2008 Reviewer, Southern Association for Information Systems Conference (SAIC 2008), Richmond, VA, USA 13–15 March.
- 2007 Program Committee, IEEE International Conference on Intelligence and Security Informatics 2007 (ISI 2007), New Brunswick, New Jersey. 23-24 May, 2007
- 2007 Reviewer, Graphics Interface 2007, Montréal, Canada, 28 – 30 May 2007.
- 2007 Reviewer, American Society for Information Science and Technology Annual Meeting 2007. Milwaukee, Wisconsin. 18-25 October.
- 2007 Program Committee, 8th World Congress on the Management of eBusiness. Toronto, Canada. 11-13 July.
- 2007 Program Committee, WWW'07 Workshop on Query Log Analysis: Social and Technological Challenges. World Wide Web 2007, Banff, Alberta, Canada. 8 May.
- 2007 Program Committee, WWW'07 Workshop on Sponsored Search. World Wide Web 2007, Banff, Alberta, Canada. 8 May.
- 2007 Program Committee, Chi'07 Workshop on Exploratory Search and HCI: Designing and Evaluating Interfaces to Support Exploratory Search Interaction. ACM CHI2005, Conference on Human Factors in Computing Systems (CHI'07), San Jose, CA. 29 April 2007.
- 2007 Program Committee, IEEE Intelligence and Security Informatics Conference (ISI 2007), New Brunswick, NJ. 23 – 24 May, 2007.
- 2006 Program Committee: 2006 Research Symposium of the Special Interest Group on Human-Computer Interaction. American Society for Information Science and Technology. Austin, Texas. 5 November 5, 2006
- 2006 Reviewer, Hawaii International Conference on System Sciences 2007. Waikoloa, Big Island, Hawaii. 3-6 January, 2007.
- 2006 Program Committee: IEEE Information Technology: New Generations (ITNG) 2006, Las Vegas, NV. 16 -19 April 2007.
- 2006 Reviewer for SIGIR 2006 Workshop on Evaluating Exploratory Search Systems. The 29th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval (SIGIR2006). 6-11 August. Seattle, Washington.
- 2006 Program Committee: 4th International Conference on Information Technology: New Generations, 16-19 April, 2007, Las Vegas, Nevada.

Professional Service

Conference Activities

- 2006 Program Committee: 1st Information Interaction in Context Symposium (IliX symposium). Copenhagen, Denmark. 18-20 October 2006.
- 2006 Program Committee: IEEE Information Technology: New Generations (ITNG) 2006, Las Vegas, NV. 10 – 12 April 2006.
- 2006 Reviewer, The Fourth Annual Pre-ICIS Workshop on HCI Research in MIS, International Conference on Information Systems, 2005.
- 2006 Reviewer, Human Factors and Ergonomics Society 49th Annual Meeting, 2005.
- 2006 Program Committee: IEEE 6th International Conference on Information Technology, Coding and Computing. Las Vegas, Nevada. 5-7 April 2005.
- 2006 Program Committee: the 5th International Conference on Conceptions of Library and Information Science, Glasgow, Scotland, 6-9 June 2005.
- 2006- 2002 Reviewer, ACM SIGIR International Conference on Information Retrieval.
- 2006 Session Track Co-chair, Web Searching Sessions (Three tracks), the IEEE 5th International Conference on Information Technology, Coding and Computing. Las Vegas, Nevada. 4-6 April 2005.
- 2005 Program Committee, IEEE 6th International Conference on Information Technology, Coding and Computing. Las Vegas, Nevada. 5-7 April, 2005.
- 2005 Program Committee, the 5th International Conference on Conceptions of Library and Information Science, Glasgow, Scotland, 6-9 June 2005.
- 2004 Session Track Co-chair, Web Searching Sessions (Three tracks), the IEEE 5th International Conference on Information Technology, Coding and Computing. Las Vegas, Nevada. 5-7 April, 2004.
- 2004 Reviewer, ACM CHI2005, Conference on Human Factors in Computing Systems
- 1998 Session Moderator, New Engineering Educators Conference, June 1998, Seattle, Washington.
- 1998 Co-organizer for ACM Computer Science Education Research Competition, February 1998, Atlanta, Georgia.
- 1998 Reviewer, New Engineering Educators Conference
- 1998 Reviewer, American Society for Engineering Education National Conference
- 1997 Session Moderator for American Society for Engineering Education National Conference, June 1997, Milwaukee, Wisconsin.

Advisory Boards

Current - 2012	CLAK Impressions http://www.linkedin.com/company/clak-impressions
Current - 2010	The Pennsylvania Technical Assistance Program (PennTAP), http://penntap.psu.edu/action-council/
Current - 2010	Innoblue, http://innoblue.org/
2016 - 2007	Global Academic Panel, Google Online Marketing Challenge, http://www.google.com/onlinechallenge/discover/judging-panel.html
2012 - 2010	Chief Marketing Officer (CMO Council) Advisory Board for research initiative, Localize to Optimize Sales Channel Effectiveness
2012 - 2010	Jabbit Board of Advisors, http://www.jabbit.com/

Invited Talks (Selected)

Keynote

Keynote, 13th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2016). 29 Nov – 02 Dec. 2016, Agadir, Morocco.
<http://jimjansen.blogspot.com/2016/11/social-media-conversations-using-cross.html>

Keynote

Keynote, 2016 Sixth National Doctoral Forum of Information Science, 7-18 July 2016, Tianjin, China.
<http://jimjansen.blogspot.qa/2016/07/keynote-speaker-at-2016-sixth-national.html>

Keynote

Keynote, The 7th International IEEE on Information and Communication Systems (ICICS 2016), 5-7 April, Irbid, Jordan.

Keynote

Keynote, The 10th International ACM Conference on Ubiquitous Information Management and Communication (IMCOM 2016), 4-6 January, Danang, Vietnam.
<http://jimjansen.blogspot.qa/2015/12/imcom-2016-keynote-transformed-role-of.html>

Presentation, Sungkyunkwan University (Sowan Campus), 23 April 2015, Seoul, South Korea. <http://jimjansen.blogspot.com/2015/04/visit-to-department-of-interaction.html>

Presentation, National Research University Higher School of Economics, 10 March 2014, St. Petersburg, Russia
<http://jimjansen.blogspot.com/2014/03/presentation-at-national-research.html>

Presentation, Yandex, 11 March 2014, St. Petersburg Russia.
<http://jimjansen.blogspot.com/2014/03/visit-to-yandex-headquarters-in-st.html>

Invited Talks (Selected)

Presentation, Sungkyunkwan University (Sowan Campus), 20-21 June 2013, Seoul, South Korea.

<http://jimjansen.blogspot.com/2013/06/research-workshop-discussion-on-web.html>

Presentation, Library and Information Science Department and College of Information and Media, Duksung Women's College, 19 June 2013, Seoul, South Korea.

<http://jimjansen.blogspot.com/2013/06/theoretical-constructs-of-searching-and.html>

Presentation, Library and Information Science Department, College of Liberal Arts, Sungkyunkwan University, 18 June 2013, Seoul, South Korea.

<http://jimjansen.blogspot.com/2013/06/keyword-advertising-research.html>

Presentation, Qatar Computer Research Institute, 24-29 April 2013, Doha, Qatar.

<http://jimjansen.blogspot.com/2013/04/research-presentation-to-folks-at-qatar.html>

Presentation, Department of Decision Sciences, College of Business and Public Administration, Old Dominion University, 14-15 April 2013, Norfolk, VA.

<http://jimjansen.blogspot.com/2013/04/keyword-advertising-presentation-to.html>

Presentation, Google Online Marketing Challenge Workshop, The University of Illinois at Urbana-Champaign, 11 March 2013.

<http://jimjansen.blogspot.com/2013/03/gomc-presentation-to-students-at.html>

Presentation, Casual Living Conference 2012, 22-24 February 2012, Sarasota, FL.

<http://accentsandfurnishings.com/conferences/casualivingconference/2012/index.html>

Keynote, The Direct Marketing Association of Washington (DMAW) Professor Institute. 3-4 January 2012, Washington. DC.

http://www.dmawef.org/Professors_Page/Professors_Page.html

Presentation, Advance 2011: Rediscovering the Customer. 20-22 September 2011, San Diego, CA. <http://www.idanalytics.com/advance2011/>

Webinar, Web Analytics Webinar for the American Society for Information Science and Technology, 17 June 2011. <http://asist.org/Conferences/webinars/2011/web-analytics.html>

Keynote

Keynote, Buying and Selling eContent 2011. 28 March 2011, Scottsdale, AR. <http://www.buy-sell-econtent.com/2011/Speakers/JimJansen.aspx>

Presentation, Evri (semantic news aggregation company). 10 February 2011, Seattle, WA <http://jimjansen.blogspot.com/2011/02/visit-to-evri-semantic-news-aggregation.html>

Presentation, IMPAQT (search engine marketing agency). 10 November 2010, Pittsburgh, PA. <http://jimjansen.blogspot.com/2010/11/visit-to-search-engine-marketing.html>

Presentation, Yahoo! Research Lab. 9 November 2010, New York, New York.

<http://jimjansen.blogspot.com/2010/11/visit-to-yahoo-research-labs-new-york.html>

Invited Talks (Selected)

Presentation, School of Communication and Information, Rutgers University. 8 November 2010, New Brunswick, NJ.

University-wide Presentation, Ryerson University, 18 October 2009, Toronto, Canada.

Presentation, Query Log Analysis: From Research to Best Practice 2009/ 27-28 May. London, UK. Funded by European Union project on Evaluation, Best Practices and Collaboration for Multilingual Information Access.

<http://ir.shef.ac.uk/cloughie/qlaw2009/index.html>

Presentation, Query Log Analysis: From Research to Best Practice 2009/ 27-28 May. London, UK. Funded by European Union project on Evaluation, Best Practices and Collaboration for Multilingual Information Access.

<http://ir.shef.ac.uk/cloughie/qlaw2009/index.html>

Presentation, Google. 30 October 2008. Mountain View, CA.

Presentation, IMPAQT (search engine marketing agency). 28 October 2008, Pittsburgh, PA.

<http://jimjansen.blogspot.com/2008/10/visit-to-sem-impagt.html>

Presentation, Mahalo (a human power search engine). 6 July 2008, Los Angeles, CA.

<http://jimjansen.blogspot.com/2008/07/mahalo-human-power-search-engine.html>

Presentation, Pepperjam (search engine marketing agency). 24 June 2008, Wilkes-Barre, PA.

<http://jimjansen.blogspot.com/2008/06/visit-to-pepperjam.html>

Presentation, School of Communication and Information, Rutgers University. 2 September 2005, New Brunswick, NJ.

Presentation, College of Information, University of North Texas, 15 June 1998. Denton, TX

Membership in Professional Societies

American Society for Information Science and Technology (ASIST)

Armed Forces Communications and Electronics Association (AFCEA)

Association for Computing Machinery (ACM)

The Institute of Electrical and Electronics Engineers (IEEE)

Societies: Computer Society

Keynote

Professional Experience

Numerous **consulting projects** and **expert witnessing** (class action suits, patent litigation, and civil litigation)

US Army Officer (2002 – 1985): Held various command and staff positions of progressively increasing responsibility. Responsible for vision articulation, planning, directing, and day-to-day management of organizations ranging in size from 10 to over 200 personnel. Served in numerous locations in the United States, Europe, Central America, and the Far East as a communication officer. Responsible for the planning and installation of various types of communication systems including radio, telephone, computer and other digital networks. Served with the 8th U.S. Army Y2K Operational Evaluation Team validating critical information management systems. Responsible for the long term planning, developing, and budgeting of communication systems of all types for the U.S. Forces stationed on the Korean Peninsula. Responsible for a 22-person division that develops photographic, graphical, audio-visual and multimedia material for the U.S. Army War College.

Appendix B Testimony in the Last Four Years

Year Retained	Deliverables	Retained by	Case
2017	Deposition Report Research	Defendant	Originally styled: JEFFREY EPSTEIN, Plaintiff, vs. SCOTT ROTHSTEIN, individually, BRADLEY J. EDWARDS, individually, and L. M., individually, Defendant, IN THE CIRCUIT COURT OF THE FIFTEENTH JUDICIAL CIRCUIT, IN AND FOR PALM BEACH COUNTY, FLORIDA. CASE NO.: 502009CA040800XX3OGBAG Law Firm: Searcy Denney Scarola Barnhart & Shipley, PA
2017	Deposition Report Research	Plaintiff	CONGOO, LLC, a Delaware limited liability company, d/b/a ADIANT (Plaintiff) v. SELL IT SOCIAL, LLC, a New York limited liability company, d/b/a REBEL CIRCUS (Defendant), Docket No. C-12037-16 Civil Action, Superior Court of New Jersey Chancery Division, Somerset County Law Firm: Beattie Padovano, LLC
2016	Deposition Report	Plaintiff	Jane Doe v. Transocean Offshore Deepwater Drilling Inc.; BHP Billiton Petroleum (Deepwater) Ltd.; Schlumberger Technology Corporation; Aramark Services, Inc., and RPS Group, Inc., Cause No. 2016-14927, In the 151st Judicial District Court of Harris County, Texas Law Firm: Arnold & Itkin LLP
2016	Deposition Report	Plaintiff	VIRGINIA L. GIUFFRE, Plaintiff, v. GHISLAINE MAXWELL, Defendant. Case #: 1:15-cv-07433 United States District Court Southern District of New York Law Firms: Boies Schiller & Flexner LLP and Jaffe, Weissing, Edwards, Fistos & Lehrman, P.L.
2015	Testimony Deposition Report	Plaintiff	WICKFIRE, LLC, Plaintiff, v. TRIMAX MEDIA, INC., LAURA WOODRUFF, WREI, INC., JOSH WEST, Defendants. CIVIL ACTION NO. 1:14-CV-34. IN THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF TEXAS AUSTIN DIVISION Law Firms: Susman Godfrey LLP, Bracewell & Giuliani LLP, Denko Coburn Lauff LLP, Dykema Cox Smith, and Atlas Law PLLC

Year Retained	Deliverables	Retained by	Case
2014	Testimony Deposition Report	Plaintiff	<p>ERIN ANDREWS, Plaintiff, vs MARRIOTT INTERNATIONAL, INC., a Delaware Corporation; WESTEND HOTEL PARTNERS, LLC dba NASHVILLE MARRIOTT AT VANDERERBILT UNIVERSITY, a Delaware Limited Liability Company, and MICHAEL DAVID BARRETT, an individual, Defendants. CASE NO. 11C4831, which is pending in the Circuit Court for Davidson County Tennessee at Nashville.</p> <p>Law Firm: Greene Broillet & Wheeler LLP</p>

Appendix C Documents Referenced

Web Services

- Comscore <https://www.comscore.com>
- Google Keyword Tool <https://adwords.google.com/KeywordPlanner>
- Google Search Engine www.google.com/
- Google Trends <https://www.google.com/trends/>
- SimilarWeb www.similarweb.com/

Reports and Articles Referenced

- 2018-07-18 BuzzFeed News _pdf, 2018-08-28 BuzzFeed News _ Breaking News _ Original Reporting _ News Analysis.pdf, 2018-08-28 Tweets with replies by Elon Musk (@elonmusk) _ Twittr.pdf
- 2018-08-28 Tweets with replies by Elon Musk (@elonmusk) _ Twitter.pdf
- 2018-09-04 BuzzFeed News _ Breaking News _ Original Reporting _ News Analysis.pdf.
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Appendix E Supporting and Supplementary Documents

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SimilarWeb Traffic Numbers (Note: This table includes traffic data for the three sites that were excluded from the final analysis. i.e., en.wikipedia.org, www.quora.com, www.yahoo.com)

Domains	Daily Unique Visitors (Desktop+Mobile Web)
Onion.com	-
1045freshradio.ca	136
abcnews.go.com	930,650
althouse.blogspot.com	3,146
amedpost.com	795
arstechnica.com	408,727
au.news.yahoo.com	85,031
auntymike.com	-
austrian.economicblogs.org	67
bak.megam.info	-
beta.nbcnews.com	107

Domains	Daily Unique Visitors (Desktop+Mobile Web)
bgr.com	648,154
bigwnews.com	365
blogs.findlaw.com	17,775
boingboing.net	115,189
businessglitz.com	-
california.nris.com	55
canoe.com	63,817
celbestnews.com	34
chinapost.nownews.com	761
cisnfm.com	250
cnnphilippines.com	39,959
coconuts.co	23,804
country104.com	215
dailyasianage.com	1,416
dbpost.com	1,458
defence.pk	20,992
divemagazine.co.uk	1,405
dlisted.com	16,472
edition.cnn.com	774,586
elotiv.com	200
en.mogaznews.com	3,219
en.wikipedia.org	9,100,924
energy953radio.ca	-
entertainment.inquirer.net	35,884
expressdigest.com	790
extra.ie	8,804
extras.ie	-
feedimo.com	162
finance.yahoo.com	806,127
floridaactioncommittee.org	214
fortune.com	208,506
forum.thaivisa.com	-
fox61.com	6,821
freethoughtblogs.com	2,683
gadgets.ndtv.com	811,132
gizmodo.com	977,904
globalnews.ca	445,163
gulfnews.com	102,204

Domains	Daily Unique Visitors (Desktop+Mobile Web)
heavy.com	459,577
hienalouca.com	837
hotair.com	24,696
hotlifestylenews.com	357
hush-mag.com	79
inews.co.uk	113,504
interestingengineering.com	45,919
irving.fortune.com	-
japantoday.com	22,889
jerseyeveningpost.com	4,462
junkee.com	33,332
kiwifarms.net	17,375
knappily.com	454
knowtechie.com	2,812
kywnnewsradio.radio.com	1,800
lifeboat.com	1,031
loupventures.com	409
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news.yahoo.com	979,759
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pressfrom.info	1,324
qz.com	451,589
sanfrancisco.cbslocal.com	45,913
seekingalpha.com	247,501
slate.com	499,188
southfront.org	7,842
sputniknews.com	1,023,682
stopelonfromfailingagain.com	8
stv.tv	18,309
techcrunch.com	454,437
techgrabyte.com	560
thehill.com	640,781
themorningbellbd	-
thenewdaily.com.au	42,395
thenextweb.com	121,986
thephagroup.com	99
thesunbest.com	252
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tmsssmagazine.com	50
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truepundit.com	16,903
twnews.co.uk	-
wgntv.com	50,493
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www.2oceansvibe.com	10,014
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- <https://www.theaustralian.com.au/nation/world/thai-cave-diver-vernon-unsworth-sues-elon-musk-for-pedo-tweet/news-story/fdb1df653ade851b29d62291f65ae6c5>
- <https://www.thedailystar.net/world/news/musk-sued-calling-thai-cave-rescuer-pedophile-1635475>
- <https://www.thedrive.com/news/23643/teslas-elon-musk-sued-by-cave-diver-he-referred-to-as-pedo-and-child-rapist>
- <https://www.theguardian.com/technology/2018/dec/27/elon-musk-pedo-diver-vernon-unsworth-defamation-lawsuit-dismiss>
- <https://www.thesun.co.uk/news/7280868/vernon-unsworth-elon-musk-lawsuit-paedo-slur/>
- <https://www.thetimes.co.uk/article/british-cave-rescuer-sues-elon-musk-over-sex-slur-xfq77dlx7>
- <https://www.theverge.com/2019/5/10/18564625/elon-musk-vernon-unsworth-pedo-guy-tweets-defamation-lawsuit-trial-date-set>
- <https://www.t TMZ.com/2019/05/14/elon-musk-claims-diver-suing-him-over-pedo-comment-for-fame-cash/>
- <https://www.usatoday.com/story/tech/2018/12/27/elon-musk-looks-dismiss-pedo-lawsuit-says-comments-not-serious/2420500002/>
- <https://www.vanityfair.com/news/2018/09/elon-musks-war-with-the-sec-could-cost-him-everything>
- https://www.vice.com/en_us/article/3keq3v/elon-musk-sued-for-pedo-tweet-vernon-unsworth-cave-diver
- <https://www.voanews.com/silicon-valley-technology/teslas-musk-sued-calling-thai-cave-rescuer-pedophile>
- <https://www.washingtonexaminer.com/news/defamation-suit-against-elon-musk-for-pedo-guy-tweet-heads-to-court>
- <https://www.wsj.com/articles/thai-cave-diver-sues-elon-musk-for-defamation-1537212892>

Links to YouTube Videos Containing the Defaming Statements

- <https://www.youtube.com/watch?v=N43WomfUix8>
- <https://www.youtube.com/watch?v=unTfj1AnPQg>
- <https://www.youtube.com/watch?v=pyKrI0E5iss>
- <https://www.youtube.com/watch?v=Csa7zSG4MFE>
- <https://www.youtube.com/watch?v=s8DPHBYFNq8>
- <https://www.youtube.com/watch?v=8LT5kvxG3Cw>
- <https://www.youtube.com/watch?v=ehpiA8u50sk>
- <https://www.youtube.com/watch?v=EofULpIJRWU>
- <https://www.youtube.com/watch?v=jxjihf2d6x0>
- <https://www.youtube.com/watch?v=Q6s-yo6AJYw>
- <https://www.youtube.com/watch?v=mII8b7C87OE>
- <https://www.youtube.com/watch?v=30UegaZByCk>
- <https://www.youtube.com/watch?v=7bFor5sqtLQ>
- <https://www.youtube.com/watch?v=ix8PcfPPqd8>
- <https://www.youtube.com/watch?v=ShZ2osFgDaA>
- <https://www.youtube.com/watch?v=kkjdFsRFXJY>
- https://www.youtube.com/watch?v=0n_TFsyxZFI
- https://www.youtube.com/watch?v=jLorzu_9XhQ
- <https://www.youtube.com/watch?v=Pb-Xcg9t340>
- <https://www.youtube.com/watch?v=qXJFhi6-Q0Y>
- <https://www.youtube.com/watch?v=Luo3S83F3Dk>
- <https://www.youtube.com/watch?v=ftm6Q5ee2Yo>
- https://www.youtube.com/watch?v=uDP6_4jUmiQ
- https://www.youtube.com/watch?v=p_3L5-cHre8
- <https://www.youtube.com/watch?v=5SC-1O2S17w>
- <https://www.youtube.com/watch?v=6oXpre9mkWE>
- <https://www.youtube.com/watch?v=s7bszaELzgU>
- <https://www.youtube.com/watch?v=l06l6hgl1s0>
- <https://www.youtube.com/watch?v=RyyBt1olM4c>
- https://www.youtube.com/watch?v=ww_zKNJujT4
- https://www.youtube.com/watch?v=gBH_UpWo7N0
- https://www.youtube.com/watch?v=V8kOiIqm_1o
- <https://www.youtube.com/watch?v=kQDRnpE0I9c>
- <https://www.youtube.com/watch?v=cV-bhwX-amM>
- https://www.youtube.com/watch?v=PriFu_FcQhw
- <https://www.youtube.com/watch?v=rWSRVXvRsD0>
- <https://www.youtube.com/watch?v=pddp60niOM8>

- <https://www.youtube.com/watch?v=RQ9zr8Y4dug>
- <https://www.youtube.com/watch?v=FwcNze4sN3U>
- <https://www.youtube.com/watch?v=IxX0QasUmfE>
- <https://www.youtube.com/watch?v=muWfuC-kZiY>
- <https://www.youtube.com/watch?v=AMbF7onEjfc>
- <https://www.youtube.com/watch?v=r0hBqPDrEWQ>
- <https://www.youtube.com/watch?v=8LT5kvxG3Cw>
- https://www.youtube.com/watch?v=uDP6_4jUmiQ
- https://www.youtube.com/watch?v=PriFu_FcQhw
- https://www.youtube.com/watch?v=mLS4hIxp_OY
- <https://www.youtube.com/watch?v=O59Q51zFCVc>
- <https://www.youtube.com/watch?v=Q6s-yo6AJYw>
- <https://www.youtube.com/watch?v=EofULpIJRWU>
- <https://www.youtube.com/watch?v=6oXpre9mkWE>
- https://www.youtube.com/watch?v=p_3L5-cHre8
- <https://www.youtube.com/watch?v=xXtPkL4RGOA>
- <https://www.youtube.com/watch?v=ix8PcfPPqd8>
- <https://www.youtube.com/watch?v=olIuc-Hlav8>
- <https://www.youtube.com/watch?v=GxiKLlkozVs>

Appendix F List of Countries with Sites That Disseminated Articles Containing the Defaming Statement

1. Australia
2. Bangladesh
3. Cameron
4. Canada
5. China
6. Fiji
7. Germany
8. Hong Kong
9. India
10. Ireland
11. Italy
12. Japan
13. Kenya
14. Malaysia
15. New Zealand
16. Oman
17. Pakistan
18. Philippines
19. Qatar
20. Russia
21. Saudi Arabia
22. Singapore
23. South Africa
24. Taiwan
25. Tanzania
26. Thailand
27. Turkey
28. United Arab Emirates
29. United Kingdom
30. United States of America
31. Vietnam

EXHIBIT 2

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

VERNON UNSWORTH,

Plaintiff,

vs.

Case No. 2:18-cv-8048-svw

ELON MUSK,

Defendant.

VIDEO DEPOSITION OF BERNARD J. "JIM" JANSEN, PhD

November 4, 2019

9:57 a.m.

L. Lin Wood, P.C.

1180 West Peachtree Street

Suite 2040

Atlanta, Georgia

Valerie N. Almand, RPR, CRR, CRC

Chelsea Diallo, Legal Video Specialist

Job No. 47149

1 believe to be the number of potential daily unique
2 visitors to the websites that hosted the articles
3 you collected, the articles on appendix 9, as
4 calculated by a website called SimilarWeb during
5 the period May to July 2019; is that right?

6 MR. GRUNBERG: Objection, form.

7 A. The -- it includes that. But as I --
8 there's many other things I kind of outline in my
9 report. But yes, I am measuring the daily unique
10 traffic to these sites that hosted one or more of
11 these articles, and yes.

12 Q. So your work tells us where the
13 information was available, correct? And by "the
14 information," what I'm referring to are the
15 defaming statements that Mr. Musk made about
16 Mr. Unsworth. Your report tells us where that
17 information was made available on the internet.

18 A. Among other things, yes.

19 Q. Well, it doesn't tell us to whom it was
20 disseminated, that information was disseminated,
21 does it?

22 MR. GRUNBERG: Objection, form.

23 A. Well, these particular sites have
24 visitors, and so it was obviously disseminated to
25 those particular visitors. Now, who those

1 visitors are, I do not know.

2 BY MR. SCHWARTZ:

3 Q. But isn't it true that in order for
4 someone to read any of the defaming statements --
5 and let me back up for a second. If I use the
6 term defamatory statements in this deposition will
7 you understand that I'm referring to what you
8 describe in paragraph 12 as the defaming
9 statements there, so I don't have to -- we don't
10 have to say back and forth the entirety of
11 paragraph 12?

12 A. Yes.

13 Q. So what -- well, let me ask it this way.
14 You can't tell us the number of people to whom the
15 articles that contain statements Mr. Musk made
16 about Mr. Unsworth were actually disseminated, can
17 you?

18 MR. GRUNBERG: Objection, form.

19 A. Well, as I mentioned, each of these sites
20 have visitors that come to the sites, so they were
21 disseminated to them. If your question is who
22 they actually are, then no, I don't know that.

23 BY MR. SCHWARTZ:

24 Q. Well, are you giving any testimony in
25 this case as to the number of people who actually

1 saw any of the articles in your report?

2 A. What I was asked to do is to measure the
3 level of dissemination, so the distribution,
4 circulation of these articles and defaming
5 statements.

6 Q. Right. But are you giving any testimony
7 as to the number of people who actually saw any of
8 the articles on your list?

9 A. I've not been asked to do that.

10 Q. Even if you haven't been asked, I need
11 you to tell me whether, in fact, you are planning
12 on giving any testimony in this case as to the
13 number of people who actually saw any of the
14 articles on your list in Appendix D.

15 A. As I sit here today I'm not planning on
16 doing that.

17 Q. Do you know how many people actually saw
18 any of the articles you've identified in your
19 list?

20 A. Again, I was not asked to do that, so I
21 didn't investigate that.

22 Q. And so you don't know, do you?

23 A. I didn't investigate it, so, you know, I
24 don't know.

25 Q. Okay. Are you giving any testimony in

1 this case as to the number of people who actually
2 read any of the articles on your list?

3 A. As I said, I was asked to measure the
4 level of dissemination. I was not asked to
5 measure the number of people that read the
6 article -- the articles.

7 Q. Sorry, I didn't mean to interrupt. So
8 you will not be giving any testimony in this case
9 as to the number of people who actually read any
10 of the articles on your list.

11 A. I've not been asked to do that. I do
12 want to point out that in my report there are some
13 supporting articles, for example, from BuzzFeed
14 that do report some visitor traffic to the
15 articles. But I've not been asked to analyze
16 who's read the articles.

17 Q. Right. My question is a little
18 different. I appreciate the information. What I
19 asked is whether you're giving any testimony in
20 this case as to the number of people who actually
21 read any of the articles on your list.

22 A. I was not asked to investigate that, so
23 as I sit here today I'm not planning on providing
24 that information.

25 Q. All right. As you sit here today do you

1 know how many people actually read any of the
2 articles you've identified in your report?

3 A. As I said, I was not asked to investigate
4 that, so I don't know the number of people that
5 have read the articles.

6 Q. Are you giving any testimony in this case
7 as to the number of people who believed anything
8 Mr. Musk said about Mr. Unsworth?

9 A. No.

10 Q. Do you know how many people believed
11 anything Mr. Musk said about Mr. Unsworth?

12 A. I was not asked to investigate that, so
13 no.

14 Q. Are you giving any testimony in this case
15 as to the number of people who think that
16 Mr. Unsworth's reputation has been harmed in any
17 way by anything Mr. Musk said about Mr. Unsworth?

18 MR. GRUNBERG: Hold on, let me look at
19 that before you answer.

20 Objection, form.

21 A. I'm sorry, can I get the question again?

22 BY MR. SCHWARTZ:

23 Q. Sure. Let me read it. Are you giving
24 any testimony in this case as to the number of
25 people who think that Mr. Unsworth's reputation

1 has been harmed in any way by anything Mr. Musk
2 said about Mr. Unsworth?

3 A. I was not asked to investigate that, so
4 no, as I sit here today I'm not planning on
5 providing that information.

6 Q. Do you know whether anyone thinks that
7 Mr. Unsworth's reputation has been harmed in any
8 way by anything Mr. Musk said about him?

9 MR. GRUNBERG: Objection, form.

10 A. Well, again, I was not asked to
11 investigate that. But personally I read quite a
12 few articles, so I have an opinion -- or I have an
13 impression. But no, I was not asked to
14 investigate that, so no, I'm not planning on
15 providing that information.

16 Q. Well, how many people in the world do you
17 think Mr. Unsworth's reputation has been harmed in
18 any way by anything Mr. Musk said about
19 Mr. Unsworth?

20 MR. GRUNBERG: Objection, form.

21 A. I was not asked to investigate that, so I
22 don't know.

23 BY MR. SCHWARTZ:

24 Q. Now, the -- if you look at your report,
25 if we go to page 5, paragraph 20.c., you say that

1 of course, that are not in here, but I've touched
2 on all the highlights.

3 BY MR. SCHWARTZ:

4 Q. Okay. Your degrees -- you have three
5 degrees in computer science; is that right?

6 A. That is right.

7 Q. And you also have a Master's Degree in
8 international relations, correct?

9 A. Correct.

10 Q. And are you bringing to bear in this case
11 any expertise or education from -- in the subject
12 of international relations?

13 A. No.

14 Q. Okay. So the am I correct, then, that
15 the expertise that you bring to this case is in
16 the field of computer science?

17 A. The broad field of computer science, yes.

18 Q. You aren't an expert in behavioral
19 science, right?

20 A. I don't know exactly what you mean by
21 behavioral science. But my degrees are in
22 computer science.

23 Q. Do you have any degrees in behavioral
24 science?

25 A. No.

1 Q. Do you have any degrees or expertise in
2 psychology?

3 A. I do not have any degrees in psychology.

4 Q. Do you hold yourself out as an expert in
5 psychology?

6 A. No, I do not.

7 Q. Do you have any degrees in the English
8 language -- in English language or usage?

9 MR. GRUNBERG: Objection, form.

10 A. I do not have any degrees in the use of
11 English language, no.

12 BY MR. SCHWARTZ:

13 Q. Do you hold yourself out as an expert in
14 English language or usage?

15 A. No, I don't.

16 Q. Do you have any degrees in journalism?

17 A. No.

18 Q. Do you hold yourself out as an expert in
19 the field of journalism?

20 A. I do a lot of work with journalists, so
21 there are aspects of my job that intersect or
22 overlap with journalism. But my focus is
23 primarily on web analytics and dissemination, user
24 traffic, those type of -- that aspect of on-line
25 journalism.

1 Q. Do you hold yourself out as having any
2 expertise in any other aspect of journalism
3 besides what you just described?

4 A. I have no degrees in journalism. So the
5 application of my knowledge of computer science
6 and web analytics in the domain of journalism.

7 Q. Okay. Do you have any expertise in the
8 field of writing newspaper or -- newspaper
9 articles or magazine articles?

10 A. Do I have any degrees?

11 Q. Do you have any expertise?

12 A. Other than my high school newspaper, no,
13 I don't.

14 Q. Okay. Is there any aspect of your work
15 on your high school newspaper that you're bringing
16 to bear in the opinions you're expressing in this
17 case?

18 A. Not that I can see, no.

19 Q. Have you ever worked as a journalist for
20 any -- let me withdraw the question and asked it
21 cleanly. Have you ever worked as a journalist?

22 A. No, I have not.

23 Q. Have you ever testified as an expert on
24 journalism in a case?

25 A. Other than how it applies to web traffic,

1 no, I have not.

2 Q. So, in other words, to the extent
3 journalism or the field of journalism has touched
4 on any of your work, it hasn't been with regard to
5 whether a particular article is well written, not
6 well written, what its subject matter is.
7 Instead, your expertise has been what was the web
8 traffic to a particular piece of journalism. Is
9 that what you're saying?

10 A. Well, your question was kind of compound
11 there. So the aspect of whether an article is
12 written to some journalistic standard, you know,
13 that's not my domain of expertise. In terms of
14 topical classification of articles and journalist
15 particular articles, then yes, I've done that as
16 part of my computer science application.

17 Q. And what do you mean by topical
18 classification of articles?

19 A. Well, one of the research products I do
20 is to use web analytics to generate personas that
21 represent customer segments for different
22 organizations. One of those organizations are
23 several -- or some of those organizations are news
24 channels. So we use an algorithmic approach to
25 take news articles, automatically topically

1 classify them, and then present them in these
2 personas so journalists and social media managers
3 will know what their consumers are interested in.

4 Q. You said you -- are you the person who
5 developed the algorithm for making those topical
6 classifications?

7 A. It's based on prior work, and then we
8 modify it for our particular domain of on-line
9 article classification. I did not develop the
10 algorithms.

11 Q. Who did?

12 A. We use several. One is an algorithm
13 called LDA. I can't remember the author off the
14 top -- the researcher off the top of my head. But
15 it's well known algorithm for topical
16 classification, widely used today. We've modified
17 it slightly to work with social media content.

18 Then there's -- you know, we use
19 structural machine learning -- excuse me,
20 supervised machine learning. Again, I did not
21 develop that algorithm. Several researchers have
22 contributed that algorithmic development. My
23 research has applied, I apply research. I take
24 theoretical things that other people have done,
25 modify them for a particular domain.

1 Q. Did you use either of those tools in this
2 case?

3 A. No.

4 Q. And by tools, I mean the algorithms,
5 software applications or other means of using any
6 of the topical classification algorithms or other
7 systems you were describing in your prior
8 testimony. You didn't use those in your work in
9 this case, did you?

10 A. No, I did not.

11 Q. Okay. You understand the jury in this
12 case may look at your curriculum vitae in deciding
13 whether you really are an expert in the areas of
14 your testimony?

15 MR. GRUNBERG: Objection, form.

16 A. I don't know.

17 BY MR. SCHWARTZ:

18 Q. Do you know that the jury may look at
19 your curriculum vitae in deciding whether you're
20 credible and how much weight to give your
21 testimony?

22 A. I don't know.

23 Q. Okay. You wouldn't want there to be
24 anything in your curriculum vitae that could
25 mislead the jury about you in any way, would you?

1 MR. GRUNBERG: Objection, form.

2 A. I don't know what -- I don't know what
3 you mean.

4 BY MR. SCHWARTZ:

5 Q. Well, you've listed all kinds of
6 educational or professional papers, other things
7 you've done. You wouldn't want the jury to get an
8 impression from that that -- you wouldn't want to
9 mislead the jury about any of the information that
10 you've put in your curriculum vitae, would you?

11 MR. GRUNBERG: Objection, form.

12 A. I don't even understand the gist of the
13 question. This is my vitae that I use for -- to
14 represent my professional life, so it is what it
15 is.

16 BY MR. SCHWARTZ:

17 Q. And is it completely accurate?

18 A. As accurate as I can make it, as accurate
19 as I know it is. Yeah, yes.

20 BY MR. SCHWARTZ:

21 Q. Your resume or your curriculum vitae
22 doesn't exaggerate anything about you, does it?

23 A. As far as I know it does not.

24 Q. Okay.

25 MR. SCHWARTZ: We've been going for about

1 you required to follow any rules or standards
2 issued by any academic or professional
3 organizations?

4 MR. GRUNBERG: One second. Objection,
5 form.

6 A. Well, as I explained in my report, there
7 are industry standard methodologies. I don't know
8 if there are particular rules to -- for this,
9 exactly what I'm doing.

10 BY MR. SCHWARTZ:

11 Q. Which industry standards or standard
12 methodologies did you follow in your work in this
13 case?

14 A. The -- in terms of methodological
15 approaches, one is the employment of a traffic
16 service, SimilarWeb. I then clearly defined what
17 I was looking for in terms of unique daily
18 visitors. I tried to limit the particular time
19 period to the -- to a given period. There are
20 certainly standard procedures for identifying the
21 domain, identifying duplicate articles, whether
22 the articles contain the defaming statements or
23 not.

24 As I outline in the report, whether the
25 article contained the defaming statements or not

1 was rather straightforward. Same way whether
2 the -- a website contained a particular article or
3 not. And then using -- estimating web traffic
4 services, using tools like SimilarWeb again is an
5 industry standard approach for doing something
6 like this.

7 Q. Okay. How do you know that? Did you
8 consult with any treatises, guide books, websites
9 to tell you that the process that you were using
10 here was consistent with industry standards or
11 methodologies?

12 A. This is my area. This is what I do. I
13 do web analytics, I do searches and optimization.
14 This is my area.

15 Q. I understand it's your area. My question
16 was different, though. Did you consult with any
17 guide books, treatises, websites or articles to
18 confirm that the methodologies you were using in
19 this case were consistent with those industry
20 standards and methodologies?

21 A. The -- other than, you know, the approach
22 for using -- other than the approach of using the
23 websites I outline in my report and the definition
24 also, you know, there was no need to consult guide
25 books. I mean, this is an approach, this is --

1 **this is what I do.**

2 Q. I understand it's what you do, but let me
3 give you an example. Is there some recognized
4 standard or methodology in your industry that
5 endorses the use of SimilarWeb for web traffic
6 counts, head counts, visitor accounts?

7 A. Well, it's a de facto industry standard
8 that to get competitive analysis, and to
9 understand web traffic to other sites that you
10 don't own, you know, you have to use some type of
11 web traffic service.

12 Q. Right. My question is more specific. Is
13 SimilarWeb recognized as an acceptable and
14 approved source for web traffic in your field?

15 A. Yes. I think SimilarWeb's the --
16 probably the best web traffic estimation service
17 out there. I've used it extensively. I
18 understand the general layout of the methodology
19 that it uses. If you -- it's recognized by many
20 people as the -- giving the best traffic numbers.
21 So yes.

22 Q. All right. You said also one of the
23 methodologies that you used that's a standard in
24 your industry was to eliminate duplicate articles.
25 Did I hear you correctly?

1 MR. GRUNBERG: Objection, form.

2 A. I don't know for sure.

3 BY MR. SCHWARTZ:

4 Q. So did you do anything to ensure that the
5 articles on your exhibit D do not contain any
6 duplicates?

7 A. The process I used was to use the URL,
8 the link to the article, and if it was the -- the
9 link was identical, then I considered that a
10 duplicate and did not include the duplicate URLs.

11 Q. Other than making sure that you haven't
12 used a duplicate URL, did you do anything to
13 ensure that none of your articles on Exhibit D are
14 duplicates?

15 MR. GRUNBERG: And by the way, objection
16 to form. You may want to be more clear about
17 that. You understand that there's syndicated
18 articles and such, so are you talking about a
19 unique instance by giving publication of issuing
20 that article, or are you talking about an article
21 that is then syndicated to another -- to a series
22 of publications and then made available to a
23 series of additional people on additional
24 platforms?

25 MR. SCHWARTZ: Counsel makes a very good

1 A. What date are you referring to? I'm
2 sorry.

3 Q. In the upper left corner it says
4 8/11/2019.

5 A. Yes. Well, that's the date I printed
6 this particular PDF.

7 Q. So what is this data about foxnews.com
8 that SimilarWeb gave you?

9 A. Yes, the -- if you -- in addition to
10 going through the application program interface
11 you can actually just query a particular domain on
12 the SimilarWeb web interface itself, and it
13 provides you this particular report. And I
14 originally did my calculations using this
15 particular version of SimilarWeb.

16 Q. Okay. And so -- and then the --

17 A. This is not reflected in my report. This
18 was just documents that I created during the
19 process of --

20 Q. Okay.

21 A. -- doing my report. And so in response
22 to your request for documents I provided
23 everything I had, and these traffic reports were
24 inside of those.

25 Q. I see. And so this report looks like the

1 information SimilarWeb was giving you was
2 information SimilarWeb had gathered for the period
3 May to July 2019; is that right?

4 **A. That is correct.**

5 Q. But you're saying that's not -- this
6 information is not information you put into your
7 report.

8 **A. No, I went to the --**

9 Q. Okay.

10 **A. -- September 2018.**

11 Q. Got it, got it. Thank you for the
12 clarification.

13 Now, I want to try and understand how
14 your data might reflect the 98 million potential
15 unique daily visitors.

16 **A. Yes.**

17 Q. Might take into account or not take into
18 account human behavior, if you will. So let me
19 ask you this as a hypothetical question: If --
20 well, put it a slightly different way.

21 When you say that 98 million -- there are
22 roughly 98 million potential daily unique visitors
23 to the websites you looked at, that doesn't mean
24 that 98 million different people looked at those
25 websites, does it?

1 A. For -- it means for each individual
2 website, those visitors are unique for that
3 particular period.

4 Q. Right. But it doesn't tell us -- for
5 example, let's say one of the websites was
6 newyorktimes.com. And during the period that
7 SimilarWeb was looking at, September 2018, they
8 counted as a -- through however their software
9 works a person as a daily unique visitor to the
10 newyorktimes.com website. If during that same
11 period of time that SimilarWeb was looking at web
12 traffic that person went to another website that's
13 on your list --

14 A. Uh-huh.

15 Q. -- SimilarWeb would -- and that person
16 was counted as a daily unique visitor to that
17 website, that one person would show up, and their
18 web browsing, would show up as two unique daily
19 average users on your report, wouldn't they?

20 A. Yeah. That -- the daily unique visitors
21 are calculated by website, and so there could be
22 an overlap between the two, which is -- my purpose
23 of trying to be very conservative in this and
24 limit -- only doing one particular day of website
25 traffic, to try and account for that kind of stuff

1 that could happen.

2 Q. Right. So you're an expert on web
3 traffic. People often visit more than website in
4 a given day, don't they?

5 A. The -- there are various metrics
6 depending what people do. On these particular
7 news sites, yeah, people have certain behavioral
8 characteristics, and it is possible, of course,
9 that they could visit two of the 300 -- multiple
10 sites that are on the list. That can happen.

11 Q. Right. Some people could visit more than
12 two of the 354 websites on a given day. They
13 could visit four, five or six.

14 A. Yeah. It's -- if you kind of look at the
15 stuff on how people browse news, most people are
16 kind of occasional users. So I'd be really
17 surprised if they visited that many particular
18 websites, but it's possible.

19 Q. Did you do anything in your work in this
20 case to eliminate from your 98 million count
21 people who visited more than one website in your
22 354 websites on a particular day?

23 A. As far as I know there's no way to do
24 that type of overlap, so I took the approach of
25 trying to be very conservative in the whole

1 calculation of the number itself.

2 Q. Well, okay, let's unpack what you just
3 said. One, you said there's no way to do that.

4 A. I don't know of a way to identify people
5 that go to -- multiple people that go to --
6 individuals that may have went to more than one of
7 these particular websites.

8 Q. Or put it a slightly different way, you
9 were unable in your work in this case to eliminate
10 from your 98 million count people who visited more
11 than one of those websites on the same day, right?

12 A. Well, not exactly, because it could be
13 zero. There could be nobody that went to any of
14 the websites. What I'm saying is I don't know of
15 a data collection method where you can do that to
16 identify that.

17 Q. Right. But here's what you've told me so
18 far. People do often visit more than one website
19 a day.

20 A. I said they can visit more than one
21 website a day, yes.

22 Q. Do you have any knowledge as you sit here
23 today the extent to which people who visit
24 websites of the type you included in your 354
25 websites visit more than one of those in a day?

1 A. I don't have the number as I sit here.

2 Q. So there very well may be people who
3 visited more than one of those websites in one day
4 and SimilarWeb counted those, each visit, as a
5 separate visit in your 98 million, right?

6 A. Based on the way you're asking it, it
7 could be zero. But yeah, it could also -- could
8 occur.

9 Q. It may not be zero, it could be zero, it
10 could be in the thousands or millions. You don't
11 know it one way or the other, do you?

12 A. I would be shocked if it's that high.
13 But it can occur.

14 Q. Did you do anything in your work in this
15 case to ascertain how high that number could be,
16 that is to say, the double, triple or additional
17 counting of people in the SimilarWeb data you
18 relied on?

19 A. As I said, I'd be surprised if it's
20 double or -- if it's triple or that high. But
21 what I tried to do or what I did was to take a
22 very conservative approach because, again, I don't
23 know the way to calculate that particular overlap.
24 But I acknowledge that it can occur.

25 Q. Well, why would you characterize what you

1 did as conservative as opposed to aggressive if
2 you didn't eliminate something that you suspect
3 may have occurred and inflated your number?

4 MR. GRUNBERG: Objection, form.

5 A. As I outlined in my report, I have 15
6 different factors where I intentionally -- or I
7 did not include dissemination of the defaming
8 statements, including, I'll give you one example,
9 is that many of these websites posted multiple
10 articles, okay. I only included one particular
11 count of the daily unique visitors.

12 Also, most of these articles are still
13 available on the web, so there could still get
14 traffic to them. I also didn't include the folks
15 that could have seen the defaming statements via
16 just through social media.

17 So I did several approaches, you know, 15
18 of them, to ensure I came up with a very
19 conservative number.

20 Q. When you say 15, you're referring to
21 those subparts of paragraph 22 of your report?

22 A. That is correct.

23 Q. But you told me you didn't undertake
24 those steps.

25 MR. GRUNBERG: Objection, form, misstates

1 MR. GRUNBERG: Objection, misstates prior
2 testimony.

3 A. The -- one of the predictive points you
4 bring up, I realize that there could be, from a
5 VIN diagram, an overlap between the visitors.
6 Given the fact I only did one day of traffic,
7 given the other factors that I didn't include such
8 as traffic to multiple articles from the same
9 site, okay, I think the 98 million is a very
10 conservative number. But I acknowledge there
11 could be an overlap. It could be zero.

12 Q. Okay. Wasn't my question, though. My
13 question is for purposes of using the 98 million
14 figure, you are assuming that nobody went to more
15 than one of the 354 websites you looked at on the
16 same day during the period SimilarWeb was
17 measuring that traffic, aren't you? Yes or no.

18 MR. GRUNBERG: Hold on one second.
19 Objection, misstates prior testimony, as well as
20 misrepresents the report of record.

21 Go ahead.

22 A. The -- in addition to the additional
23 measure to address the issue you bring up is why I
24 state that there -- you know, I forget the exact
25 term I use, 98 million, even though I give the

1 exact number, I don't know the exact number that
2 is the 98 million count. But I -- I did not
3 deduplicate across multiple sites, and instead
4 relied on a conservative estimation of the traffic
5 count to begin with to take into account those
6 potential overlap.

7 BY MR. SCHWARTZ:

8 Q. So when you say you did not deduplicate
9 the overlapping sites, is that another way of
10 saying yes to the question I asked you, which is:
11 You're assuming, at least insofar as aggregating,
12 adding up the SimilarWeb data --

13 A. Yeah.

14 Q. -- that nobody went to more than one
15 website of the 354 you studied during the period
16 of time SimilarWeb was analyzing that traffic.

17 MR. GRUNBERG: Objection, misstates prior
18 testimony, and the expert report.

19 A. The -- I think what you're asking is, you
20 know, this is not like you're standing over
21 someone's shoulder counting individual people.
22 It's 98 million. And yes, it is the traffic, it's
23 an estimation service. And that's why I presented
24 98 million and not 98,365,052, because it's --
25 there is -- there could be some overlap there,

1 there could be none. But I did not include the
2 overlap -- or did not discount for an overlap
3 factor in the 98 million.

4 BY MR. SCHWARTZ:

5 Q. Okay. And as you sit here today, you
6 have no way of knowing what that overlap factor
7 is. And just so someone reading this transcript
8 will understand what we're talking about, the
9 overlap factor is the possibility that somebody
10 went to visit more than one of the websites on
11 your 354 listed websites on the same day that
12 SimilarWeb was studying the traffic that you
13 relied on to get to 98 million.

14 A. I acknowledge, yes, that could happen.
15 But I -- yes.

16 Q. Well, not only are you acknowledging that
17 it could have happened, you don't know how much of
18 that, the extent to which that could have
19 happened, do you, or the extent to which it did
20 happen. As you sit here today you just don't know
21 one way or the other, correct?

22 A. The -- I did not calculate that. Again,
23 I don't know any way to calculate that. And so
24 that's why I took the aspect of coming up with a
25 very conservative traffic number. I don't know --

1 I did not analyze what the visits to multiple
2 sites are, so yes, it could be zero, it could be
3 more.

4 Q. And you just don't know one way or the
5 other as you sit here today.

6 A. I wouldn't phrase it like that, no.

7 Q. Then give me your best estimate of the
8 number of overlaps that are found within the 98
9 million number in your report. And by overlaps, I
10 mean where a person visited at least -- one person
11 visited at least -- at least more than one of the
12 354 websites on the same day that SimilarWeb was
13 studying that traffic to get to your 98 million.

14 A. As I said, I didn't calculate that so I
15 cannot give you a number.

16 Q. Okay.

17 MR. GRUNBERG: The food is here, if you
18 want to --

19 MR. SCHWARTZ: All right. Let's go off
20 the record.

21 THE VIDEOGRAPHER: Going off the record.
22 The time is now 12:44 p.m.

23 (Recess)

24 THE VIDEOGRAPHER: We are back on the
25 record. The time is now 1:16 p.m.

1 Q. And it doesn't tell us -- the BuzzFeed
2 number, whatever it is, doesn't tell us the number
3 of people who read far enough into the article to
4 learn whatever it was BuzzFeed was reporting that
5 Mr. Musk was saying about Mr. Unsworth. That
6 information BuzzFeed doesn't report either, does
7 it?

8 MR. GRUNBERG: Objection, form.

9 A. The number is -- is a count of the
10 browsers, the people that have opened that
11 particular article. There's no -- there was no
12 number provided about how far they scrolled down
13 in the article or anything like that.

14 BY MR. SCHWARTZ:

15 Q. Okay. The -- okay.

16 So let's go back to SimilarWeb. For a
17 visit to a website to be counted as a unique daily
18 visit in the source you relied on to get to 98
19 million, that is SimilarWeb, those sites don't --
20 those visitors, rather, I should say, don't have
21 to be human beings, do they?

22 A. Well, certainly there are nonhuman beings
23 on the web that visit websites. But one of the
24 data collection points from SimilarWeb is their
25 panel data of 4 million actual people that visit

1 websites. And that's one of the data collection
2 points that they use to calculate the number of
3 unique visitors.

4 Q. So walk me through it. Let's pick one of
5 the -- it doesn't matter which one, but I'm just
6 going to look at Appendix D to your report which
7 is Exhibit 136, and you let me know when you have
8 that.

9 A. Okay.

10 Q. So the first -- let's just go with the
11 first item here, it's from something called
12 Onion.com. I don't need to repeat the URL. You
13 understand which one I'm looking at.

14 A. That is correct, yeah.

15 Q. So whatever number SimilarWeb gave you
16 for the daily unique visitors to the Onion.com
17 website, how does SimilarWeb calculate that
18 number?

19 A. The process they use, and again whether
20 it's for the Onion domain or any domain, they
21 have -- their methodology is -- they publish it.
22 They have four different disparate data sources,
23 one of which is their panel, and these are people
24 that have opted in to have their browsing traffic
25 logged, and so those are actual people. So that's

1 one data collection point.

2 The other data collection point they use
3 is data from internet service providers that
4 monitor the traffic.

5 The third data source is publicly
6 available data, typically probably they don't go
7 onto it on a website, but probably scraping of
8 data from search engine result pages.

9 And then the final data source is they
10 have they say hundreds of thousands of actual
11 websites that have opted in for their particular
12 website traffic numbers to be accessible by
13 SimilarWeb.

14 And SimilarWeb takes all those particular
15 four data sources, runs it through its machine
16 learning algorithms, and that's how they generate
17 the traffic estimation numbers for all the sites.

18 Q. Okay. And data from ISPs, let's go
19 through these. The data from ISPs -- ISPs are
20 internet service providers, correct?

21 A. That's correct.

22 Q. Does that data include data from only
23 humans or humans as well as whether it's computers
24 or bots or other nonhuman web activity?

25 A. Yeah, good question. I can't -- I don't

1 know their particular algorithm at that detail.

2 Q. Okay. And then the third source was
3 public data, you said it might be scraping from
4 search engine results or whatnot. Can you tell us
5 whether that data includes or excludes web
6 activity resulting from nonhuman sources such as
7 bots or programs?

8 A. For that particular data I wouldn't
9 really see bots as playing a role, because it's
10 typically would be -- they would scrape like
11 results from Google or Bing, and they typically do
12 that because SimilarWeb not only provides traffic
13 services but also advertising or marketing advice
14 in terms of search engine optimization. So for
15 that particular data I don't think bots would
16 really play much of a role.

17 Q. As you sit here today can you tell us the
18 extent to which it might or might not play a role
19 as a percentage, a fraction, some other
20 quantification?

21 A. Well, you know, again, from the whole
22 technique I would say it would be zero.

23 Q. Okay.

24 A. Because I just don't see bots playing a
25 role in that particular data collection point.

1 Q. And then you said there are hundreds of
2 thousands of sites that have told SimilarWeb
3 they're willing to share their web traffic
4 numbers; is that right?

5 A. Yes. Again, from the documentation that
6 is available, it appears that they give access to
7 Google Analytics, Adobe Analytics, some of the
8 website analytics platforms, and then SimilarWeb
9 can use that to compare their estimations are for
10 those sites.

11 Q. Did SimilarWeb when you did your work in
12 this case tell you which of the 357 odd sites you
13 looked at --

14 A. 54.

15 Q. -- 54 websites you were looking at
16 receive data from the websites themselves to allow
17 them to compare it to what their estimations are?

18 A. I didn't get that information.

19 Q. So as you sit here now you can't tell us
20 whether any of the websites included in your list
21 share data with SimilarWeb.

22 A. I didn't investigate that, so no.

23 Q. Okay. And let's go to the first one.
24 You said there are some people who have opted into
25 allowing SimilarWeb to track their web browsing.

1 Is that what you said?

2 A. I believe so, yes.

3 Q. Okay. How many such people are there?

4 A. If I remember their documentation, it
5 was -- I can't remember the exact number, but they
6 provide the number, and it's in the millions of
7 people. They cover 190 plus countries, so it's
8 got to be tens of millions of people to get that
9 level. But I can't recall the number off the top
10 of my head.

11 Q. Okay. When did you your work in this
12 case did SimilarWeb tell you which of the websites
13 you were looking at that they were getting data
14 from people who had opted into allowing SimilarWeb
15 or -- to view their browsing to those websites?

16 A. Well, just to explain the technology, no,
17 they did not. But the methodology would be
18 applied to every single website, so it's the same
19 methodology. It's not like that particular data
20 by itself would be the only data that they would
21 use. They use data from all four websites and
22 then their machine learning algorithms come up
23 with these estimates, because that's one of the
24 advantages of using this web traffic service is
25 the methodology is the same across all the

1 websites. So I would be shocked if they would do
2 any variations. And in their documentation they
3 present that they apply the same methodology for
4 all the traffic estimations.

5 Q. You said something about four websites.
6 I didn't understand, what --

7 A. I'm sorry, four -- the four data
8 collection processes they use to come up with the
9 traffic estimations.

10 Q. I hear the words you're saying, but I've
11 lost the train of thought, so just if we could
12 back up and you could just explain what you meant.
13 In other words, just so we have my question in
14 context.

15 A. Absolutely.

16 Q. My question was: When you pull data from
17 SimilarWeb about a particular website does
18 SimilarWeb tell you whether on that particular
19 website their data includes actual data from
20 people who have opted in to allow them to -- allow
21 SimilarWeb to watch their browsing history?

22 A. As far as I know, no.

23 Q. As you sit here now can you tell me which
24 of the websites on your list of 357 websites
25 SimilarWeb has actual user data for, whether it

1 was based on people opting in or any other way?

2 **A. No, I do not have that information.**

3 Q. Do you know whether that's the case in
4 any of the 357 websites on your list; that is to
5 say that it's based in whole or in part by actual
6 data that SimilarWeb has from web users?

7 **A. Again, I didn't investigate that, no, so**
8 **I don't have that information.**

9 Q. Do you know the algorithm that SimilarWeb
10 uses to take the four sources of data you've just
11 described and manipulate them through some
12 algorithm to arrive at its estimate for daily
13 unique visitor traffic to a given website?

14 **A. That's proprietary. They give a -- the**
15 **overview. They refer to machine learning**
16 **algorithms. But they don't say specifically what**
17 **they use.**

18 Q. Okay. Does SimilarWeb state either in
19 the software or its website or anywhere else that
20 they are -- in fact, that their average daily
21 unique visitor counts exclude any visits to the
22 websites that you may choose to ask them about
23 from nonhumans?

24 **A. Again, I don't recall that exact**
25 **statement in any of their presentations, no.**

1 Q. Is there something you've been told by
2 someone at SimilarWeb or read somewhere that tells
3 you that the SimilarWeb daily user -- unique daily
4 user counts exclude traffic to the website from
5 nonhumans?

6 A. I would expect it, that they would
7 exclude that. I mean, that's why you do these
8 traffic estimations. And I assume their
9 algorithms take that into account. But as I'm
10 sitting here, I can't recall the reference or a
11 reference to it.

12 Q. Okay. You said that you assume that
13 SimilarWeb's metrics, including for daily unique
14 visitors, takes into account that there's a
15 tremendous amount of traffic on the internet
16 that's nonhuman generated.

17 A. Sure, absolutely.

18 Q. How do you know it? Can you tell me
19 anything as you sit here today that tells you that
20 you know that to be for a fact what they're doing?

21 A. Well, as I said, I don't have the
22 reference. I can't point to the exact reference.
23 But the purpose of these traffic estimation tools
24 is to get the estimation of human traffic. But
25 again, I don't have the exact reference today.

1 Q. Do you have any reference?

2 A. As I said, I don't have the reference to
3 it.

4 Q. Okay. Do you agree with me that a
5 tremendous percentage -- terrible term. Do you
6 agree with me that there is a substantial
7 percentage of traffic on the internet that is
8 nonhuman generated?

9 A. Yes, the bot traffic is a constant issue
10 when you're trying to estimate actual customers
11 and visitors.

12 Q. And is it also correct that articles have
13 been written that estimate that the amount of
14 traffic on the internet not generated by human
15 activity could be as much as half of the traffic?

16 A. I don't recall exactly that, but yeah,
17 it's high. It's in the -- it's high. I don't
18 recall if it's exactly 50 percent. But depending
19 on websites and what particular domain you're
20 looking at, yeah, there's quite a bit of bot
21 traffic.

22 Q. Okay. What's your best estimate of the
23 percentage of internet traffic to websites that's
24 not generated by human activity?

25 A. You know, you're kind of just asking me

1 off the top of my head. But, you know, of I've
2 seen reports, you know, the 30 percent, 40
3 percent, you know, a good portion of traffic.
4 Again, it would kind of depend on the website and
5 what particular vertical you're looking at.

6 Q. When you say vertical, I don't know what
7 that means.

8 A. Well, like, you know, on certain
9 e-commerce sites or, you know, web scraping sites,
10 search engine sites, some of the -- especially in
11 the e-commerce domain, that has a higher -- that
12 has a potential for some higher bot traffic, so
13 you can come up with a general number, but there's
14 going to be some variation across verticals.

15 Q. Okay.

16 A. Yeah, yeah.

17 Q. So what's your best estimate of the
18 percentage of nonhuman traffic on the websites
19 that you looked at that are in your 357 websites?

20 A. I didn't look at bot traffic to those
21 particular sites, so I couldn't say for sure.

22 Q. Okay.

23 (Defendant's Exhibit 147 marked)

24 BY MR. SCHWARTZ:

25 Q. Okay, Mr. Jansen, we've put before you as

1 Exhibit 147 an article from The Atlantic from
2 January 31, 2017 titled The Internet is Mostly
3 Bots.

4 My first question is have you heard of a
5 publication called The Atlantic?

6 **A. Yes.**

7 Q. Do you hold it in reasonable regard as --
8 they write intelligent, thoughtful,
9 well-researched articles for the most part?

10 **A. They do nice investigative reporting,**
11 **yes.**

12 Q. Okay. By any chance do you know Adrienne
13 Lafrance of the Technology Beat out of The
14 Atlantic?

15 **A. No, I do not.**

16 Q. Have you ever heard of a web security
17 firm called Imperva, I-M-P-E-R-V-A?

18 **A. No, I don't believe I'm familiar with**
19 **them.**

20 Q. So let me just read this to you, a
21 portion of this. It's the third paragraph of the
22 article and it says, quote, Overall bots, good and
23 bad, are responsible for 52 percent of web
24 traffic, according to a new report by the security
25 firm Imperva, which issues an annual assessment of

1 **A. SimilarWeb.**

2 Q. SimilarWeb, sorry, let me start again.

3 Once you received the data you used from
4 SimilarWeb to arrive at your 98 million figure did
5 you do anything to reduce it on account of a
6 potential that that may have included --

7 **A. No, no.**

8 Q. -- may have included nonhuman traffic?

9 **A. I did not, and the reason I did not is**
10 **because one of the data collection points are**
11 **these panel data, and so that -- those are humans,**
12 **so you know those are humans. And I -- the -- so**
13 **I did not discount for bot traffic to those**
14 **particular sites because of that.**

15 Q. I see. But you previously testified that
16 you don't know whether SimilarWeb's numbers for
17 any of the websites you've included in your report
18 included data from any of these panels or humans
19 participating in allowing people to collect their
20 data, do you?

21 **A. No, that's not correct. Because I**
22 **explained that these panels are part of the**
23 **SimilarWeb's algorithm for calculating the number**
24 **of daily unique visitors. So the panel data we**
25 **know is human. We know those are not bots. And**

1 so -- and your question earlier was do I have this
2 reference about specifically if SimilarWeb
3 excludes them. No, I don't have that. I'd kind
4 of be very surprised if they didn't already do
5 some calculations, the machine learning algorithm,
6 to exclude that. So I did not --

7 Q. So if I'm understanding you correctly,
8 what you're saying is that SimilarWeb gets data
9 from humans from websites and does something using
10 its own proprietary algorithm that allows it to
11 exclude nonhuman activity from any website for
12 which SimilarWeb gives you data, even if for that
13 website it doesn't have any human information?

14 A. As I -- that's not what I said. As I
15 said, if for -- let's go over their data
16 collection methods again, one of which is the
17 panel, those are humans. And so there's no bot
18 traffic there.

19 The other is the web scraping. Again,
20 not affected by bot traffic.

21 So that leaves the ISP data or the data
22 reported by individual websites. From setting up
23 Google Analytics and Adobe Analytics, those
24 platforms, you typically exclude the bot traffic
25 from the analytics you report, or at least

1 separate it out.

2 But I don't know the internal workings of
3 the SimilarWeb algorithm, you know, how that's
4 done, where it's done.

5 Q. But just so I understand it, though, the
6 panel part, that's humans, when you say panel
7 you're referring to human activity that SimilarWeb
8 monitors.

9 A. Yes.

10 Q. Okay. I believe you told me that you
11 don't know whether SimilarWeb has any actual human
12 website visiting numbers for any of the 357
13 websites you looked at. Am I right so far?

14 A. Well, again, the question is -- the
15 question doesn't take into account the methodology
16 that SimilarWeb applies. They don't separate out
17 in their reporting, you know, particular websites
18 that only the panel goes to, for example.

19 Q. I think we're saying the same thing. In
20 other words -- but let's just be really clear.
21 I'm going to -- we're going to take this all the
22 way to the end and you're going to get a chance as
23 we go each step to tell me where this panel data
24 becomes relevant. I just want to understand what
25 the panel data is in the first instance, okay. So

1 let me ask the question again.

2 You don't know whether SimilarWeb has any
3 panel data for any of the 357 websites specific to
4 those specific -- those websites, do you?

5 **A. They don't make that data available as**
6 **far as I know.**

7 Q. So what you're saying is through some
8 algorithm that you don't know any details on,
9 SimilarWeb looks at user data that -- for websites
10 that it does have panel data on and processes that
11 in some way that gives it confidence to think that
12 even if it doesn't have that data for a given
13 website you're asking it about, it can be somehow
14 more confident that that represents only human
15 activity?

16 **A. That was too much of a -- I can't follow**
17 **that.**

18 Q. Well, how does any data from human beings
19 that SimilarWeb has, not for the websites you're
20 interested in but for other websites, tell
21 SimilarWeb that the nonhuman data it's looking at
22 somehow, or the other data it's looking at,
23 excludes nonhuman activity?

24 MR. GRUNBERG: Objection, form.

25 **A. I don't -- what nonhuman data are you**

1 **talking about?**

2 BY MR. SCHWARTZ:

3 Q. Well, like the public data, the --

4 A. As I already mentioned, the public data,
5 I don't see bots having any impact on it.

6 Q. Data from ISPs.

7 A. The data from ISPs, I don't know what
8 ISPs do internally with that particular data,
9 so . . .

10 Q. And the websites that share their data
11 with SimilarWeb, you don't know whether that data
12 includes or excludes bot traffic, do you?

13 A. The specific sites, no, I don't. But I
14 would -- a typical setup of those particular sites
15 is you identify bot traffic and try to exclude it
16 from your actual visitors.

17 Q. You may try to. You have no way of
18 knowing the success rates for any of those
19 websites, do you?

20 MR. GRUNBERG: Objection, form.

21 A. SimilarWeb and their documentation say
22 they have hundreds of thousands of websites. So
23 yes, I don't know on all the websites.

24 BY MR. SCHWARTZ:

25 Q. You don't know it for any of them, do

1 you? Can you tell me what level of confidence the
2 owners of the websites that furnish data to
3 SimilarWeb have succeeded in eliminating bot
4 traffic from their counts of visitors?

5 A. As I said, I don't even know -- I don't
6 know the sites that SimilarWeb is using, and
7 SimilarWeb doesn't make it available. I can tell
8 you the industry standard approach is you separate
9 the bot traffic from human traffic. That's what I
10 can tell you.

11 Q. And can you tell me how the websites that
12 are furnishing data to SimilarWeb do that?

13 A. As I've said now three times, I don't
14 know the websites they're using. SimilarWeb
15 doesn't make that available.

16 Q. Well, even if you don't know the
17 websites, do you know the processes that these
18 websites are using to ensure that the data that
19 they give SimilarWeb excludes nonhuman visits?

20 A. Again, I don't know the particular
21 websites, and I've already said there are industry
22 standard approaches, people would use what I
23 expect them to use. Do I know specifically that
24 those sites are doing that, no.

25 Q. So as you sit here now --

1 MR. GRUNBERG: Just to be clear, because
2 I want to make sure he answers your question. Are
3 you asking him whether he generally understands
4 what processes websites might use to do this?

5 MR. SCHWARTZ: No.

6 MR. GRUNBERG: Is that the question?

7 MR. SCHWARTZ: No.

8 MR. GRUNBERG: I want to make sure.

9 BY MR. SCHWARTZ:

10 Q. I want to know if you know what processes
11 these websites actually used, if any, in order to
12 eliminate nonhuman activity or nonhuman visits
13 from their visit web counts that SimilarWeb
14 obtained. Do you know?

15 A. For now the fifth time I'm telling you I
16 don't know the particular sites but I can tell you
17 it's the industry standard approaches. I don't
18 know the specific sites so I obviously don't know
19 specifically what those sites are doing.

20 Q. And you don't know the extent to which
21 any of these websites that furnish data to
22 SimilarWeb have been successful or unsuccessful in
23 eliminating bot counts from their information they
24 give to SimilarWeb.

25 A. For now the sixth or seventh time, I

1 don't know the particular sites so obviously I
2 can't know what those particular sites are doing.

3 Q. I didn't ask you what they were doing. I
4 asked you -- you can't tell me whether -- the
5 extent to which any of them are successful or
6 unsuccessful using any of the industry standard
7 tools.

8 A. Now the seventh or eighth time, I don't
9 know the particular sites so I don't know the
10 particular procedures that those sites might or
11 mate not be using to separate visitor or bot
12 traffic.

13 Q. Fine. So can you tell us as you sit here
14 today how many of the 98 million daily unique
15 visitors that you included in your count are the
16 result of nonhuman traffic?

17 A. Again, I did not look at the bot traffic,
18 so I cannot answer that question sitting here now.

19 Q. If half the internet traffic is bots,
20 according to the security firm Imperva as
21 reflected in The Atlantic magazine article from
22 January 31, 2017 that we were looking at as
23 Exhibit 147, your \$98 million number if it
24 includes bot traffic could be a lot higher than
25 the number of humans.

1 MR. GRUNBERG: Objection, form.

2 A. You know, you're focusing on this bot
3 traffic when we've already talked about there's --
4 we know SimilarWeb incorporates nonbot traffic
5 into their calculations, okay. You're asking a
6 specific question do I have a reference on
7 particular bots.

8 You know, you know, the purpose of these
9 traffic estimation tools is to estimate actual
10 unique visitors. So I'd be shocked if they're not
11 doing some method to being able to identify that
12 particular traffic.

13 BY MR. SCHWARTZ:

14 Q. Did I ask you whether you would be
15 shocked if they were not doing anything to
16 identify nonhuman traffic?

17 MR. GRUNBERG: Objection, form. It's
18 argumentative.

19 A. My purpose is to explain the technology,
20 okay. That's -- and to explain the process used
21 in my report. You're asking a question that I
22 really don't think impacts the unique visitors.
23 Could there be some bot traffic in there? Yeah,
24 there could be.

25 BY MR. SCHWARTZ:

1 the best at counting sometimes, but I think that
2 might be up to about three or four of asking that
3 question.

4 Go ahead and answer.

5 **A. The -- again, my purpose was to measure**
6 **the dissemination. And, again, I did not have**
7 **article level data.**

8 BY MR. SCHWARTZ:

9 Q. All right. Now, SimilarWeb provides
10 estimated traffic to websites. It doesn't provide
11 user traffic estimates for individual articles on
12 websites; is that right?

13 **A. That's correct, yes.**

14 Q. Okay. So go back to Exhibit 146, if you
15 could. It's that one-pager from your files.

16 **A. Yes.**

17 Q. Is this -- you can't tell just from
18 looking at Exhibit 146 which website this pertains
19 to, can you?

20 **A. By just looking at this particular --**
21 **this is my like access to the API. So the data,**
22 **within the visitor engagement category I went to**
23 **monthly visitors, and then the rest of the**
24 **spreadsheet gives me all the websites and the**
25 **traffic.**

1 Q. Okay.

2 A. So this is kind of like the parameters of
3 what I told the API to do.

4 Q. And so the parameters on Exhibit 146 are
5 what you told the SimilarWeb API to do for all of
6 the websites you were studying?

7 A. Yes.

8 Q. Under step 3 where it asks you to select
9 the metrics, do you see that?

10 A. Yes.

11 Q. And the metrics to me look like monthly
12 as opposed to daily; is that correct?

13 A. Yes. They do a monthly unique visitors,
14 and then I divided it by -- to get the daily.

15 Q. That was going to be my next question.
16 You anticipated.

17 A. Yeah.

18 Q. So just so I understand, could you have
19 queried SimilarWeb as to specific days in
20 September 2019 -- '18?

21 A. I specifically talked to two SimilarWeb
22 reps, and they can't do it by individual day
23 because they do the average for the month and
24 then -- you know, I confirmed oh, this is what I
25 want to do to get the daily, and they confirmed

1 **yeah, that's how to do it.**

2 Q. In other words, get our monthly data,
3 divide by some number. And did you divide by 30
4 or 31?

5 A. **Whatever September has, it's --**

6 Q. 30.

7 A. -- 30. And -- nice try. But whatever
8 the monthly was, and -- what was I going to say?

9 **Yeah, I lost it there.**

10 Q. Okay. All right. Let's look at your
11 report. Let's go to page 27. Actually, before we
12 do that, all right. Well, maybe we can do it this
13 way. Where was the other exhibit? Sorry about
14 this. It was here. Ah, no, that's not it. I'm
15 looking for the exhibit that has the Fox data on
16 it.

17 MR. GRUNBERG: That would probably be 145
18 or so.

19 **THE WITNESS: 145.**

20 MR. GRUNBERG: Yeah, 145. That memory
21 kicking in.

22 MR. SCHWARTZ: Good for you. It's on the
23 bottom of the pile.

24 BY MR. SCHWARTZ:

25 Q. So, now I understand you've clarified

1 something that I didn't know coming into this
2 deposition, which was the data on Exhibit 145 was
3 not data that you used in your final report, and
4 this is from a different period of time.

5 But help me out anyway. So on this it
6 says that, according to SimilarWeb, the -- it
7 reports the number of 373 million on the right
8 side, do you see that?

9 **A. Yes.**

10 Q. What does that -- what does SimilarWeb
11 tell us about that?

12 **A. That is the monthly visits to that**
13 **particular website, okay. So that includes**
14 **perhaps Jim Jansen going back three times to that**
15 **particular site during that month.**

16 Q. Okay. They don't report monthly unique
17 visitors -- maybe they do, but I don't see that
18 here. Do you know why that's not there?

19 **A. Yes, this was generated from the free**
20 **version, and so if you want that type of data**
21 **you've got to pay for it. And that's what I did**
22 **with the API.**

23 Q. Got it. Then let's just move on. We can
24 shorten some stuff here. Thank you.

25 Now, do you know for any of the articles

1 on your list -- start again.

2 Do you know for any of the articles on
3 your list where on the websites that they were
4 available on they were located? In other words,
5 where on that website, home page, some other page,
6 any of that information, do you have that?

7 **A. Other than for the BuzzFeed documents**
8 **provided I don't have a snapshot of the website on**
9 **the day the article was posted, no.**

10 Q. Okay. I just want to make sure you've
11 answered my question. I think you have, but just
12 so we're clear. In other words, you don't --
13 other than for the BuzzFeed article, you don't
14 know where on these websites those particular
15 articles were placed.

16 **A. I did not visit the websites on the day**
17 **they were posted, so I don't have that**
18 **information, no.**

19 Q. Even if you didn't visit the websites on
20 the day they were posted, from any other source do
21 you know where the articles on your list in
22 Appendix B other than the BuzzFeed article were
23 posted on the websites on which they were posted?

24 **A. Well, it's -- let me backtrack. Maybe I**
25 **misunderstood your question. If you're talking**

1 about the interface, you know, I certainly do not
2 know that because I didn't visit it.

3 If you look at the URL, that will give
4 you an idea of the structure of where the article
5 was posted and if it was, for example, posted in
6 technology or social media or, you know,
7 international news and things like that. But I
8 don't have the -- I took your question to mean
9 the -- not the structure, but the interface
10 itself.

11 But from the URL you can get some
12 structural information sometimes. But I didn't
13 look at that in my analysis.

14 Q. I see. So, in other words, you can't
15 tell us how, if somebody landed on the home page
16 of one of the 354 websites in your analysis what a
17 person would have to do to find the actual article
18 from that website that's on your list.

19 A. I did not -- yeah, I said I didn't have
20 the snapshot of the interface for the particular
21 days those articles were posted, so no, I don't
22 have that information.

23 Q. You don't have the information I was
24 asking about, which was how if somebody landed on
25 the home page of any of those 354 websites in your

1 analysis what a person would have to do to find
2 the actual article from that website on your list.

3 MR. GRUNBERG: And just so we can make
4 this easier, are you asking him about this moment
5 in time or are you asking about the moment, the
6 day of the article being posted? That might help
7 get what you're looking for from him.

8 BY MR. SCHWARTZ:

9 Q. I'm not sure that I am, but let me
10 suggest something maybe I -- what I'm asking you
11 is this. As you sit here today can you tell us
12 for the articles on your list what a person would
13 have to do from the home page of those websites in
14 order to get to that article?

15 A. Yeah, I can certainly talk generically.

16 Q. No. Let me -- my question wasn't that
17 clear, then. In other words, the actual effort a
18 person would have to make in order to find the
19 article.

20 A. Right. Well, again, generically it could
21 be right on the splash -- the home page when they
22 landed, the article's right there. Could be in
23 one of the subcategories, technology, you know,
24 investments. Or they could do a search. I think
25 those would be the three kind of approaches that a

1 person would do.

2 Q. Right. But do you know for each of these
3 articles? Let's start with -- for each of these
4 articles, like whether they were on the home page?

5 A. No, I did not.

6 Q. And do you know how much effort a person
7 would have to undertake if they were at the home
8 page of these websites in order to get them to the
9 article on your list?

10 A. It would be one of kind of the three
11 general approaches that I mentioned, but I don't
12 know for each individual article.

13 Q. Do you know of any of the articles?

14 A. As I said, I didn't visit the websites
15 the day they were posted, so I don't know
16 specifically.

17 Q. All right. So do you know whether if --
18 as to those articles on your list that were not
19 posted on the home page of the websites or
20 website, in other words, it was on some
21 supplemental or deeper page, the article was
22 mentioned or linked on the home page?

23 A. The -- as I mentioned, I didn't -- when I
24 did my analysis I didn't visit the websites the
25 day they were posted. I do some examples where

1 you can do searches on websites and they -- the
2 articles show up, that's in my report. But I
3 don't have for all 605 specific articles.

4 Q. Right. But your testimony is that these
5 articles were disseminated on 354 websites --

6 A. Yeah.

7 Q. -- and here's some data traffic for
8 unique viewers to these websites. I'm trying to
9 figure out if there's any way of knowing just from
10 the mere fact that they're on the website -- or
11 not knowing from the mere fact they're on the
12 website.

13 I'm trying to ask you if somebody just
14 showed up at the home page of each of these
15 websites whether they would know that the article
16 was to be found somewhere on the website or how
17 much effort they would have to undertake in order
18 to find it. Sitting here now, that's not the
19 information you were asked to look at or have,
20 right?

21 MR. GRUNBERG: Object to the form. There
22 are a lot of different questions there.

23 A. As I said a couple times, I was not asked
24 to investigate this. I didn't visit the website.
25 But these articles are still there, so you can go

1 to the website and if you pull up one article it
2 will suggest articles for you that, you know, also
3 contain the defaming statements. You can search
4 on these websites.

5 You know, the whole Thai cave rescue
6 thing was a very popular story, and Mr. Musk's
7 comments, you know, again, very popular. But
8 again, I don't know specifics on each individual
9 article.

10 Q. Do you know them for any article?

11 A. Again, I didn't investigate this, so I
12 don't know.

13 Q. Okay. But if somebody weren't looking --
14 obviously if somebody wanted to find an article on
15 Mr. Unsworth or Mr. Musk or what Mr. Musk said
16 about Mr. Unsworth, one way someone might do that
17 is to actually go to Google and ask Google to do
18 the work, the legwork and find those articles,
19 right?

20 A. Yes.

21 Q. All right. But if somebody wasn't
22 looking to find information about Mr. Unsworth or
23 looking to find what Mr. Musk had said about
24 Mr. Unsworth, they were simply visiting the 354
25 websites you looked at, I'm trying to understand

1 Q. And as you sit here today you can't tell
2 us how much or how many of the 98 million users in
3 your daily unique user count includes users either
4 who navigated to a website by mistake or they
5 never really interacted -- they never interacted
6 with the website beyond, say, clicking on an ad
7 that took them somewhere else.

8 A. Well, again, I kind of go back to my --
9 the purpose of my analysis. So my purpose of
10 analysis was the dissemination of these defaming
11 statements. So let's say someone, take your
12 scenario, someone did accidentally go to the
13 website. They still could have saw the defaming
14 statements. Maybe it's not the website they
15 wanted to visit, but they still could have saw the
16 defaming statements, left, and it's still within
17 the numbers of my report of people that were
18 exposed to the defaming statements.

19 Q. And that would depend on whether the page
20 of the website that they landed on had the
21 defaming statements on them. As opposed to
22 being --

23 A. Or it was visible when they landed.

24 Q. Exactly, it was visible on the webpage
25 when they landed right?

1 A. In the scenario that I just outlined,
2 yes. If they accidentally went to the website,
3 saw the defaming statements, even then okay, they
4 saw the defaming statements, it got counted as a
5 unique visitor. Will it be actually a valid
6 count.

7 Q. Right.

8 A. Or people that the defaming statements
9 were disseminated to.

10 Q. So how many people accidentally navigated
11 to websites and saw the defaming statements,
12 realized they got to the website by mistake and
13 left?

14 A. I did not calculate that number.

15 Q. How many of the people in your 98 million
16 include people who accidentally wound up at a
17 website that you were looking at, didn't see the
18 content and left, or got to the website, clicked
19 through on an ad or something else without seeing
20 the content containing the statements you were
21 studying?

22 A. Yeah, this is similar to the aspect of,
23 you know, the people that, you know, read the
24 defaming statements. It's not something I looked
25 at. I was interested in dissemination of these

1 statements.

2 Q. So the answer is you don't know.

3 **A. I don't have that level of data.**

4 Q. Okay. So is it the case that it's more
5 likely that someone will read an article
6 prominently displayed on the home page of a
7 website than an article buried deep in the
8 website? If they're not getting there by a search
9 engine, for example.

10 **A. I don't know specifically in terms of**
11 **giving you a quantifiable number. But, you know,**
12 **the Pew internet research, they do these type of**
13 **publications on behaviors on websites. But I**
14 **don't have an exact number.**

15 Q. So let's see, on page 26 of your report,
16 one of the websites you list is cars.com with
17 about 345,000 unique daily visitors, right?

18 **A. Yes.**

19 Q. Okay. And that 345,000 number, that's
20 included in your 98 million total, right?

21 **A. Yes.**

22 Q. Do you know much about cars.com?

23 **A. No, I do not.**

24 Q. It's a website where people, generally
25 the purpose for going to that website is to look

1 to see if they're interested in either buying or
2 selling a car. Did you know that?

3 A. I said I'm not familiar with the
4 particular website.

5 Q. I see. How many of the 347 websites
6 included in your list are you not familiar with?

7 A. Many of the small ones I'm not familiar
8 with, many of the domain-specific ones I'm not
9 familiar with.

10 Q. And by -- what are you using to
11 differentiate ones that are small from ones that
12 are not small, in your answer?

13 A. Well, you know, typically the web traffic
14 like, you know, for example this 0nion spelled
15 with an O, I'm not familiar with, what the first
16 website mentioned here. I'm not familiar with it.

17 Q. You mean with a zero as opposed to a
18 capital O?

19 A. Exactly.

20 Q. Are you familiar with a website called
21 Onion that uses all letters to spell itself out?

22 A. Yes.

23 Q. Okay. Cars.com, as far as you know it's
24 not a news site, is it?

25 A. I'm not really familiar with this.

1 what Mr. Musk said about Mr. Unsworth is on the
2 fifth of eight pages in the cars.com article,
3 correct?

4 **A. It's one of the defaming statements, yes.**

5 Q. And you have no way of knowing the extent
6 to which anybody who saw this article opened it
7 and read it read it far enough -- read far enough
8 into the article to come across those statements,
9 do you?

10 **A. I need to clarify my methodology is my**
11 **method was whether an article contained the**
12 **defaming statements or not. I did not look at**
13 **individual behavior in that article. So whether**
14 **the defaming statements were in the title of the**
15 **article or on page 5 or at the last sentence, it**
16 **was -- it was did the article contain the defaming**
17 **statements.**

18 Q. Okay.

19 MR. GRUNBERG: And his report is fairly
20 long, and it's pretty clear about what he did look
21 at and what he didn't look at.

22 MR. SCHWARTZ: Okay.

23 MR. GRUNBERG: And, you know, we've done
24 at least an hour of questions about things he
25 didn't look at that it's clear as day on his

1 report that he didn't look at these things.

2 So, you know, it's getting to the point
3 of harassing to sit here and go through all these
4 things again and again that he's never represented
5 in his report that he did.

6 You know, you could sit here and ask this
7 man if he's ever talked to the pope, you know.
8 It's not going to get us any closer to figuring
9 out what's going on in this case, when you have
10 his report right here and it says what he did.

11 MR. SCHWARTZ: Okay.

12 BY MR. SCHWARTZ:

13 Q. You're a scientist, right?

14 **A. Computer scientist, yes.**

15 Q. And the only data that you want to use in
16 your work is reliable data, correct?

17 **A. You always want to use reliable data,**
18 **sure.**

19 Q. Did you conduct any sensitivity testing
20 or any other type of work to validate that the
21 SimilarWeb data you were receiving was reliable?

22 **A. The -- I did not do a sensitivity test,**
23 **no.**

24 Q. Did you do -- oh, I'm sorry, I cut you
25 off.

1 A. I -- as I mentioned before, from my own
2 experience and use in the field, SimilarWeb gives
3 the most reliable results. I did a comparison to
4 ensure that the numbers they gave were not overly
5 optimistic. I looked, I did research to see what
6 the opinions of others in the field were. I
7 referenced one of those in my report. I talked to
8 two different people at SimilarWeb and looked at
9 their documentation.

10 Their approach is scientific, it's
11 rigorous. The methods seem very relevant to me.
12 And so -- and also SimilarWeb is used by many
13 players in this field. There's billions of
14 dollars of advertising revenue based on it. So
15 based on those factors, SimilarWeb was appropriate
16 for this particular analysis.

17 Q. Right. Did you look for any commentary,
18 papers, articles, any information regarding the
19 reliability or accuracy of the SimilarWeb data?

20 A. Well, I do provide one reference in the
21 paper. Also in the documentation from SimilarWeb,
22 they -- they don't phrase it in terms of
23 reliability, but they phrase it in terms of that,
24 you know, the -- comparing the numbers that they
25 generate to what you may get from a particular

1 traffic and you've relied on SimilarWeb for daily
2 unique visitors, right?

3 **A. Uh-huh.**

4 Q. And you think that's important.
5 Otherwise you wouldn't have said it, right?

6 **A. I just -- I bring it up because of the**
7 **differences you're pointing out in the 1 percent**
8 **average versus the 17 percent traffic.**

9 Q. Where does it say that that 1 percent of
10 organic traffic is daily unique visitors? It
11 doesn't say that.

12 **A. It does not say that.**

13 Q. You made that up just now, didn't you?

14 **A. I did not make that up. I pointed out**
15 **that the organic traffic is 1 percent.**

16 Q. Well, that's -- that's interesting to
17 know. But what you don't seem to want to talk to
18 me about is that the overall number of visitors
19 that they counted, whether it was unique or not
20 unique, is off by 17 percent, isn't it, according
21 to this report?

22 MR. GRUNBERG: Objection. Objection,
23 form.

24 **A. On page 17 -- excuse me, page 6 it says**
25 **overestimated total visit numbers, okay, by 17**

1 **percent.**

2 BY MR. SCHWARTZ:

3 Q. Right. And that, if you look at the
4 chart on the prior page, they went to 25, they
5 looked at 25 different websites and in 10 of the
6 25 an or 40 percent, SimilarWeb overestimated,
7 right?

8 A. And as I said --

9 Q. Right?

10 A. As I -- they did overestimate on these
11 particular sites, yes.

12 Q. Right. And the total overestimation
13 including net of underestimations is 17 percent of
14 the visitor traffic, correct?

15 A. Of the visits.

16 Q. Correct?

17 A. Of the visits, yes.

18 Q. Right, okay. And my followup question
19 is: The data that SimilarWeb uses to provide
20 total visitors comes from the same sources as the
21 data they get for total unique visitors, isn't it?

22 MR. GRUNBERG: Objection, form.

23 A. I don't know for sure.

24 BY MR. SCHWARTZ:

25 Q. Do you have any reason to suspect there

1 would be one set of data that SimilarWeb scans
2 from the internet from scraping, from everything
3 else, for total traffic versus unique traffic? Do
4 you have any reason to believe that?

5 **A. I don't -- I'm trying to answer your**
6 **question. I don't know for sure, so.**

7 Q. Okay, that's good. You've answered it.
8 I appreciate that.

9 Did you read any other studies about the
10 reliability of SimilarWeb data besides Screaming
11 Frog in connection with your work in this case?

12 **A. I've done a lot of work with SimilarWeb**
13 **and I've read a lot of these studies over -- since**
14 **I've been using traffic estimation services.**
15 **There are many out there that attempt to evaluate**
16 **SimilarWeb and other traffic estimation tools.**

17 Q. And if you were aware of any other
18 studies that weighed in on the reliability of
19 SimilarWeb's data, you'd want to disclose that in
20 your report, wouldn't you?

21 **A. There -- I said there are a lot of ones**
22 **like this. I provide this as an example of what's**
23 **available.**

24 Q. Right. Are you aware of any others that
25 are critical of the reliability and accuracy of

1 way, just for the record, it's all lower case
2 A-R-H-E-F-S.

3 **A. Yeah, I mean, I've used them before for**
4 **different things, but I don't know much about**
5 **them.**

6 Q. Okay. So if we look at page 7 of 31,
7 they did an analysis of SimilarWeb for 116
8 websites and then they looked at a sample of 116
9 websites from an assessment group called Flippa,
10 F-L-I-P-P-A and then they compare them. Do you
11 see that on page 7 of 31?

12 MR. GRUNBERG: And, by the way, let me --
13 not to interrupt the question, but take your time
14 to look through that and familiarize yourself with
15 this article, as you haven't seen it before, so
16 you're allowed to do that.

17 **THE WITNESS: Okay. Okay, I'm at the**
18 **page, page 7.**

19 BY MR. SCHWARTZ:

20 Q. Page 7, all right. And do you see where
21 they say they reported their results, it's under
22 the heading, Here's What We Found? It's not a
23 heading, it's just text. It says, Here's What We
24 Found, colon, on page 7.

25 **A. Okay. Here's what we found.**

1 Q. Do you see the words "Here's What We
2 Found"? Would it be okay if I just reached over
3 to point to you where they are?

4 **A. Please.**

5 Q. Here's what we found, right there.

6 **A. Got it, yes.**

7 Q. Why don't you read along as I'll read it
8 into the record. Here's what we found.
9 SimilarWeb overestimated total unique visitors for
10 91.67 percent of the websites. SimilarWeb
11 overestimated total unique visitors by 308 percent
12 on average. SimilarWeb overestimated total page
13 views for 70 percent of the websites. SimilarWeb
14 overestimated total page views by 210 percent on
15 average. To summarize, SimilarWeb tends to
16 drastically overestimate actual unique visitors
17 and page views, according to our testing.

18 Do you see that?

19 **A. Yes, I see that.**

20 Q. Okay. The -- if the analysis that --
21 Ahrefs, A-H-R-E-F -- you know what, I misspelled
22 it, it's A-H-R-E-F-S. Ahrefs.

23 MR. GRUNBERG: I'm going with Ahrefs.

24 BY MR. SCHWARTZ:

25 Q. If the analysis of Ahrefs did of

1 overestimation of total unique visitors by 308
2 percent were applied to your number of 98 million,
3 you would need to reduce that 98 million, wouldn't
4 you?

5 **A. Based on the assumptions you just spelled**
6 **out there and the -- you know, doing math, yes.**

7 Q. Okay. All right. That's all I had on
8 this. Let me -- to move this along and get you
9 out of here, let me talk to you about the counting
10 of the articles that you did.

11 **A. Yes.**

12 Q. I think you described at, in paragraph 59
13 of your report, so why don't we take a look,
14 that's page 19, I believe. And you let me know
15 when you're on page 19 and you have paragraph 59
16 in front of you.

17 **A. I am there.**

18 Q. Okay. So you give an example of one of
19 the search page results that you generated from
20 Google on figure 8, on the next page, is that
21 right?

22 **A. Yes.**

23 Q. And did you create the screen grab, that
24 is to say figure 8 as it appears in your report?

25 **A. Yes.**

1 Q. Okay. And is this, in fact, something
2 you did yourself?

3 A. Yes.

4 Q. Okay. Quite often Google tells you, in
5 addition to just giving you the results, they tell
6 you how many results they found given the search
7 that you asked Google to do, right?

8 A. Yes. You've got to take it with a grain
9 of salt, but they do give you a number, yes.

10 Q. What's the grain of salt you have to take
11 it with?

12 A. Well, when you ask, that is also an
13 estimation, it's not an actual count. They do a
14 numerical calculation. So if you get down to page
15 10, 20, you'll see that they're kind of really not
16 results, that they're either stub pages or things
17 like that, so -- but yeah -- yes, they do give you
18 a number.

19 Q. Is there a reason why that number doesn't
20 show up on figure 8 for the search you ran?

21 A. I wouldn't know. Maybe because of the
22 time delimiter I have here. I don't know.

23 Q. All right. And to be clear by the time
24 delimiter, in other words, you looked for Google
25 articles in the time frame June 1 to July 31,

1 see how you did your work, you're not aware of any
2 record or notes of your work that reflect the
3 decisions you made or how you made the decisions
4 you made to include or exclude articles.

5 MR. GRUNBERG: Objection, form.

6 A. The methodology I used to make the
7 decisions are outlined in my report. The articles
8 that passed the criteria are in my report. I also
9 included the dash I believe 140 articles of case
10 articles that I excluded. So those are part of my
11 report.

12 BY MR. SCHWARTZ:

13 Q. Right. But there's no list that we can
14 review in front of the jury that explains, Okay,
15 for article number 3 here are the reasons why I
16 chose to include it. Article X that's not on my
17 list, here are the reasons why I chose to exclude
18 it. There's nothing like that, is there?

19 MR. GRUNBERG: Objection. I mean, this
20 is just trending into the area of irrelevant,
21 particularly because Mr. Musk twice basically
22 challenged Mr. Unsworth to sue him. And as you
23 know under the law in California, that makes it
24 reasonably foreseeable that Mr. Unsworth would,
25 indeed, have to sue Mr. Musk in order to challenge

1 the false defamatory and heinous statements that
2 Mr. Musk made about Mr. Unsworth.

3 But go ahead, if you want to continue
4 going down this road.

5 By MR. SCHWARTZ:

6 Q. Okay. Can you answer my question?

7 **A. Could you repeat the question?**

8 Q. Sure. There's no list we can review in
9 front of the jury that explains, for example, for
10 article number 3, Here are the reasons why I chose
11 to include it. Article X that's not on my list,
12 here are the reasons why I chose to exclude it.
13 There's nothing like that that you created in the
14 course of your work, is there?

15 **A. Well, there is a paragraph that explains**
16 **the inclusion part in my report, but I did not**
17 **keep a log of the articles that I did not include.**

18 Q. But even as to the articles that you
19 chose to include, you didn't log as you were
20 making the decisions to include them why you felt
21 a particular article that you were including met
22 the criteria, did you?

23 **A. As I state in my report, the articles**
24 **either included the defaming statements or not.**
25 **So it's kind of a binary decision.**

1 Q. Well, but it's more than that. You seem
2 to overlook the other criteria about whether or
3 not the article was or was not primarily about the
4 case. You didn't log the decisions you made or
5 the reasons for the decisions you made on that,
6 did you?

7 A. Those were articles that I excluded, so,
8 as I already stated, I didn't keep a log of
9 articles that I reviewed but did not include.

10 Q. But also as to articles that you included
11 as having decided that they were, quote, not
12 primarily about this case, there's no log that
13 explains the basis for your decision as to why you
14 believed that the article was not primarily about
15 the case, is there?

16 A. They included the defaming statements.
17 So they met the criteria for inclusion.

18 Q. I'm not asking you about whether they
19 contained the defaming statements. I'm focusing
20 on whether or not the article was primarily about
21 the case. Focusing on that --

22 A. Excuse me, sir, that was not your
23 question. Your question was did I keep a list of
24 which articles I included. And yes, if they
25 contained the defaming statements they were

1 **included in the list.**

2 Q. That's not what I'm asking you about.

3 Let me be very clear so you have a new question.

4 With respect to the decisions you made as to why
5 an article was not primarily about the case,
6 therefore if it contained the defaming statements
7 you would include it, right? That's the -- your
8 process, right? Contains the defaming statements
9 and it is not primarily about the case, right?

10 **A. I would include it, yes.**

11 Q. Yes. Is there a log for the articles
12 that you did include that explains how you came to
13 the conclusion that each of those articles was not
14 primarily about the case?

15 MR. GRUNBERG: Objection, form, asked and
16 answered.

17 **A. For the vast majority of articles there**
18 **was no mention of the case. There may have been,**
19 **again, one or two that have some offhand**
20 **mentioned. But, again, this is a small number of**
21 **articles that I didn't -- would even fit this**
22 **bill. Most of the articles that were about the**
23 **case were obviously about the case, and I excluded**
24 **them.**

25 Q. Isn't the question I asked you: Is there

1 a log that explains the conclusions you made as to
2 why an article that may have mentioned the case
3 was, in your judgment, not primarily about the
4 case?

5 **A. Is there a log that specifies that, no.**

6 Q. Now, with respect to whether or not an
7 article was primarily about the case, was there
8 some set of objective criteria that you applied,
9 or did you just make subjective judgments?

10 MR. GRUNBERG: Objection, asked and
11 answered.

12 **A. Could you repeat the question, please?**

13 BY MR. SCHWARTZ:

14 Q. With respect to the -- whether or not an
15 article was primarily about the case, did you
16 apply a set of objective criteria or subjective
17 criteria?

18 **A. As a thinking person I read the article**
19 **and if it was primarily about the case, many times**
20 **it was specifically -- you know, it would be**
21 **stated in the title or the lead paragraph, I'd**
22 **make a determination if it was about the case or**
23 **not.**

24 Q. What if it wasn't that clear?

25 MR. GRUNBERG: Objection, asked and

1 answered.

2 **A. Yeah, I've answered this many times. I'm**
3 **done.**

4 BY MR. SCHWARTZ:

5 Q. Okay. How many articles did your Google
6 search tell you that exist that mention Vern
7 Unsworth?

8 **A. I don't recall. I don't know.**

9 Q. Do you know an approximate number?

10 **A. I don't know approximate, no.**

11 Q. How many articles did your search results
12 generate -- by the way, you did run a, I think you
13 said, a search for just Vern Unsworth or Vernon
14 Unsworth?

15 **A. I'm sure I did. I can't say for sure but**
16 **I would assume I did.**

17 Q. Okay. How many articles in your search
18 results from Google did not contain what you call
19 in your report the defaming statements?

20 **A. That did not, how many?**

21 Q. Yes.

22 **A. I don't know. I can't recall the number.**

23 Q. Can you give us an approximate number, a
24 ratio or a percentage or a fraction of the total
25 number of articles that you found using the Google

1 **A. I did not -- that is correct.**

2 Q. Okay.

3 **A. I do -- I stated I located, this is a**
4 **sample of 140 articles that were primarily about**
5 **the lawsuit, contained the defaming statements,**
6 **but not included it into my count.**

7 Q. So you can't tell us the number of
8 articles that have been written that are primarily
9 about this lawsuit, can you? Regardless of
10 whether they contain the defaming statements.

11 MR. GRUNBERG: Objection, form.

12 **A. I --**

13 MR. GRUNBERG: By the way, are you asking
14 if he, as a general principle, can tell you or
15 whether as he sits here today he has a number for
16 you.

17 BY MR. SCHWARTZ:

18 Q. As you sit here today do you have a
19 number for me of the articles that have been
20 written about Mr. Unsworth that are primarily
21 about the lawsuit?

22 **A. Since I didn't do that analysis I don't**
23 **have the number, no.**

24 Q. And I take it, then, since you don't know
25 what these articles are, you couldn't possibly

1 tell me what the daily unique viewers count would
2 be for the websites on which those articles were
3 available. That's not information you have
4 either.

5 MR. GRUNBERG: Again, objection. Are you
6 asking if he could as a general matter or as he
7 sits here today?

8 BY MR. SCHWARTZ:

9 Q. As he sits here today.

10 A. Since I didn't do the analysis, no, I
11 could not give you that number.

12 Q. Okay. And do you know, as you sit here
13 today, whether someone Googling Vern Unsworth is
14 more likely to see stories about the lawsuit that
15 aren't on your list than they are to see any of
16 the articles that are on your list?

17 A. You're speaking specifically?

18 Q. I am.

19 A. Okay. I don't know.

20 Q. Okay. How many of the articles that are
21 on your list contain information that's critical
22 of Mr. Musk?

23 A. Critical of Mr. Musk? I didn't
24 specifically look at that. I can give you my
25 general impression of most of the articles were

1 critical of the action rather than critical of

2 Mr. Musk. But I didn't specifically look at that,

3 so I don't know.

4 Q. Okay. And just to clarify what you said,

5 in other words, most of the articles were critical

6 of Mr. Musk for saying what he said about

7 Mr. Unsworth? Is that what you mean?

8 A. From reading the articles, yeah, that's

9 my impression.

10 Q. How many articles on your list say that

11 what Mr. Musk said about Mr. Unsworth was untrue?

12 A. Untrue?

13 Q. Untrue.

14 A. Again, I didn't specifically look at

15 that. But I've read a lot of the articles. If I

16 had to kind of sum it up it would be more of

17 rather than accusations of untrue as, you know, no

18 evidence provided, would be the general gist of --

19 you know, in that vein. But again, I was not

20 asked to investigate that.

21 Q. I understand. So using that version of

22 what we're asking about, how many of the articles

23 on your list report that Mr. Musk had no evidence

24 to support his statements about Mr. Unsworth?

25 A. Again, I don't have an exact count. I'm

1 just giving you my impressions from reading the
2 articles. You know, there were some of those.
3 But most of them were just reporting the actions
4 of the defaming statements and what happened and
5 the reactions. But -- so I didn't specifically
6 look at this aspect of true or untrue.

7 Q. Okay. Some of the articles on your list
8 state that Mr. Musk was wrong to have said what he
9 said about Mr. Unsworth, right?

10 MR. GRUNBERG: I'm just going to object
11 to form, by the way, in terms of you're now
12 getting into areas that are far afield from what
13 his report says he's going to give an opinion on.
14 It's not clear what the relevance is. And if you
15 want him to now become an expert about whether or
16 not these articles were critical of Mr. Musk or
17 not, certainly his report doesn't purport to be
18 giving an expert opinion on that field. But go
19 ahead.

20 BY MR. SCHWARTZ:

21 Q. Please answer my question.

22 A. Could I get the question again.

23 Q. Sure. Some of the articles on your list
24 state that Mr. Musk was wrong to have said what he
25 said about Mr. Unsworth, correct?

1 A. Again, I was not asked to investigate
2 this. But from reading the articles, yeah, I
3 assume there are some that said that.

4 (Defendant's Exhibit 152 marked)

5 BY MR. SCHWARTZ:

6 Q. So Exhibit 152 is from feedimo.com, and
7 it's one of the articles on your list, correct?

8 A. I believe so.

9 Q. Okay. And it's headlined, says that what
10 Mr. Musk said about Mr. Unsworth was baseless,
11 right?

12 MR. GRUNBERG: Objection, form.

13 A. Well, as I'm -- as a rational person
14 reading this, it says -- actually baseless would
15 qualify feud.

16 BY MR. SCHWARTZ:

17 Q. Sorry. Let me direct your attention to
18 the first line. It says, Tech entrepreneur Elon
19 Musk has intensified his baseless attacks against
20 a British driver who helped coordinate --

21 A. Okay.

22 Q. That's the first line of the article,
23 right?

24 MR. GRUNBERG: Just to be clear, I think
25 you said British driver but you meant British

1 these 47 articles are different articles from the
2 465 articles you discuss in paragraph 55.a. of
3 your report?

4 **A. Yes, those -- I put them each in these**
5 **separate buckets to separate them out, yes.**

6 Q. Okay. And if I go to your spreadsheet it
7 will tell me which articles contain -- which
8 articles are these 47 articles, correct?

9 **A. Yes, these articles are tagged in the**
10 **spreadsheet.**

11 Q. And then I can find the average daily
12 viewer -- visitors to those websites by looking at
13 your other chart, correct?

14 **A. Yes, from those domains that those sites**
15 **were published on, you can get the dissemination**
16 **of these particular defaming statements.**

17 Q. Okay. So have you looked to see what the
18 dissemination is, in other words, the daily
19 average viewer dissemination metric is, for these
20 47 articles?

21 MR. GRUNBERG: Objection, form. And, by
22 the way, you keep on saying daily average viewer,
23 but I think you mean daily average visitor.

24 MR. SCHWARTZ: Thank you, Counsel, so
25 much. Let me back up and start again.

1 BY MR. SCHWARTZ:

2 Q. Have you done any analysis to determine
3 what the daily average visitor metric is for the
4 websites that hosted the 47 articles in paragraph
5 55.c.?

6 A. As I mentioned, it's not as cut and dry
7 as that, because it's -- when you get to the
8 traffic, or the unique visitors, there's overlap
9 because, again, these sites may have published an
10 article that's in all three of these buckets, you
11 know. So --

12 Q. I see, okay.

13 A. It's not as cleancut as saying, Oh,
14 this -- only these 47 articles had this
15 dissemination, because if a website occurred at
16 all three buckets I only counted it once, so . . .

17 Q. I see. Okay, okay, thank you. All
18 right.

19 Page 15, paragraph 48, in paragraph 48
20 you write, the second sentence, From Mr. Musk's
21 Twitter account millions of people could have seen
22 the defaming statements, and we know based on
23 screen shots above of Tweets containing the
24 defaming statements that will thousands of people
25 directly interacted with the Tweets. I wanted to

1 ask you some questions about that.

2 A. Sure.

3 Q. First of all, you don't know how many
4 people actually did see, on Twitter, that is to
5 say, Mr. Musk's Tweets concerning Mr. Unsworth, do
6 you?

7 A. I did not analyze that, so no, I do not.

8 Q. And you don't know how many people -- how
9 many of his Twitter followers actually read any of
10 his Tweets concerning Mr. Unsworth, do you?

11 A. I didn't analyze that, so no.

12 Q. And are you generally with how the
13 Twitter app works?

14 A. Yes, I use -- I did one of the original
15 Twitter research papers, had a Twitter account for
16 many years, so yes.

17 Q. Okay. So the fact that Mr. Musk may have
18 had 20 million plus followers in July 2018 doesn't
19 mean that when he Tweeted about Mr. Unsworth 20
20 million people saw it or even knew about it,
21 right?

22 A. You don't know that for sure, yes.

23 Q. So for one of Mr. Musk's followers to
24 have -- all right, let me back up for a second.

25 The -- I'm trying to come up with a

1 concept here of what I call automatic or passive
2 receipt of the Tweet. There are some
3 circumstances under which somebody who follows
4 somebody else on Twitter passively or
5 automatically gets all their Tweets, and there are
6 some circumstances where that doesn't happen,
7 right?

8 **A. Yeah, there's different approaches, yes.**

9 Q. Right. So for somebody in July 2018 who
10 was following, one of the 20 million followers of
11 Mr. Musk's Twitter account, to have automatically
12 gotten his Tweets regarding Mr. Unsworth or
13 passively receive them without doing anything,
14 that person first would have had to set up a
15 notification to receive any Tweet from Mr. Musk,
16 right?

17 MR. GRUNBERG: Objection, form.

18 **A. I mean, if they're following -- yeah, if**
19 **a person's following they can see their Tweets.**
20 **But this number of followers, it's more kind of**
21 **akin to what I did with the traffic, the website**
22 **traffic. It's the number of people that it**
23 **possibly could have been disseminated to. It's --**
24 **don't know, can't say for sure whether a**
25 **particular person saw a particular Tweet.**

1 **A. Okay.**

2 Q. So, but to put it slightly differently,
3 the mere fact that I'm -- I was -- I'm not, but if
4 I were, a follower of Elon Musk on Twitter doesn't
5 mean that I'm going to get some notification on my
6 device or when I log onto Twitter that immediately
7 says, Hey, Elon Musk has issued the following
8 Tweets, and here they are. Is that right?

9 MR. GRUNBERG: Objection, form. And you
10 know what, I'll let you answer and then we're
11 going to take a break.

12 **A. The -- in that particular scenario**
13 **someone could either see the entire stream that --**
14 **not only Mr. Musk, but everybody they were**
15 **following, his Tweets would be with -- meshed with**
16 **other people. Or if people could go directly to**
17 **his Twitter page and see all his Tweets. I mean,**
18 **those would be two -- the two primary ways of**
19 **seeing what he has Tweeted. Either something that**
20 **is just passive where you don't have to do**
21 **anything, or something you'd go and actively seek**
22 **something else.**

23 MR. SCHWARTZ: Okay. Counsel wants to
24 take a break, so let's go off the record.

25 THE VIDEOGRAPHER: Going off the record.

1 The time is now 4:39 p.m.

2 (Recess)

3 THE VIDEOGRAPHER: We are back on the
4 record. The time is now 4:49 p.m.

5 BY MR. SCHWARTZ:

6 Q. Okay. I want to finish this up quickly,
7 and I think I can ask you one question now that
8 might close this up very quickly. You're not
9 offering any opinion testimony or any testimony in
10 this case as to the number of Twitter followers of
11 Mr. Musk who actually read any of his Tweets about
12 Mr. Unsworth, correct?

13 A. I've not been asked to do that, no.

14 Q. And I think in your report you report on
15 the number of people who interacted with his
16 Tweets, right?

17 A. I mention that in the report, yes.

18 Q. And that's about 3362 people?

19 A. Without looking at the report, I -- is
20 there a particular paragraph is?

21 Q. No, I don't have that.

22 A. I don't know that number.

23 Q. My last topic -- and I really do want to
24 get you out of here -- is just to understand what
25 you can tell me about how Google arranges

1 searches. So when you were doing the searches you
2 ran, can you tell me, for example, one thing:
3 Does Google place more recently published stories
4 ahead of older stories?

5 A. The -- it's a proprietary algorithm so I
6 don't know for sure, but the general analysis that
7 has been done, especially in news articles that
8 the most recent ones will be -- that's one of the
9 factors they use in ranking the results.

10 Q. Do you know any other factors that Google
11 takes into account in ranking or prioritizing
12 which links or stories come up ahead of others?

13 A. Yes.

14 Q. What are they?

15 A. I've been told there's 201, so I will
16 cancel my flight.

17 Q. No, I don't want you to do that. Just
18 maybe one or two of the more significant ones.

19 A. Sure. The credibility of the site, so --

20 Q. Okay. And the other?

21 A. Another one would be the number of
22 perhaps links that point to that particular
23 article or that particular site. They use those
24 as anchor texts.

25 Q. And is it correct that the results that

EXHIBIT 3

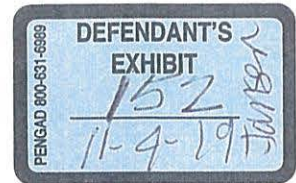
10/31/2019

Elon Musk Calls Thai Cave Diver Hero A 'Child Rapist' As He Escalates Baseless Feud - feedimo



September 05, 2018

Elon Musk Calls Thai Cave Diver Hero A 'Child Rapist' As He Escalates Baseless Feud



🔊 'I f**king hope he sues me.'



Tech entrepreneur [Elon Musk](#) has intensified his baseless attacks against a British diver who helped coordinate the rescue of 12 boys and their football coach from a flooded cave in [Thailand](#) by branding him a "child rapist" in an email to a reporter.

[Vernon Unsworth](#) is credited for playing a leading role in the rescue, which saw the young football players saved by navigating dark and tight passageways filled with muddy water and strong currents, as well as oxygen-depleted air.

In July Musk lashed out at Unsworth for ridiculing a mini-submarine he had commissioned for the rescue effort and branding him a "pedo". Musk followed up by apologising profusely when the 63-year-old said he was considering legal action over his unsubstantiated remarks.



This week BuzzFeed published two new emails from Musk in which he groundlessly called the

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10/31/2019

Elon Musk Calls Thai Cave Diver Hero A 'Child Rapist' As He Escalates Baseless Feud - feedimo



order to obtain a "child bride who was about 12 years old at the time."

Unsworth's lawyer told the Guardian in an email that his client was now proceeding with legal action. He said: "Elon Musk's campaign of publishing vile and false accusations against Mr Unsworth is inexcusable. Musk hopes to be sued and he deserves to be sued. He will be."

Musk had earlier emailed BuzzFeed to say: "I suggest that you call people you know in Thailand, find out what's actually going on and stop defending child rapists, you fucking asshole... As for this alleged threat of a lawsuit, which magically appeared when I raised the issue (nothing was sent or raised beforehand), I fucking hope he sues me."



Non-Party Mr. Mac 🙄 @RMac18 · Sep 4, 2018

Elon Musk sent me an email last week. In it, he accused a British cave rescuer of being "a child rapist" who took a "12-year-old bride." He didn't provide any evidence of those claims.

He also called me a "fucking asshole." buzzfeednews.com/article/ryanma...

In New Email, Elon Musk Accuses Cave Rescuer Of Bei...

In an email to BuzzFeed News, Tesla CEO Elon Musk accused a Thai cave rescuer of moving to Thailand to take a buzzfeednews.com



Non-Party Mr. Mac 🙄 @RMac18

This was his first email to me after I asked him twice for comment on a legal threat from the rescuer's lawyer.

He prefaced the email with "off the record" though I did not agree to that condition. Off the record is a two-party agreement.

On Thu, Aug 30, 2018 at 6:43 PM, Elon Musk <[redacted]> wrote:
Off the record

I suggest that you call people you know in Thailand, find out what's actually going on and stop defending child rapists, you fucking asshole. He's an old, single white guy from England who's been traveling to or living in Thailand for 30 to 40 years, mostly Pattaya Beach, until moving to Chiang Rai for a child bride who was about 12 years old at the time. There's only one reason people go to Pattaya Beach. It isn't where you'd go for caves, but it is where you'd go for something else. Chiang Rai is renowned for child sex trafficking.

He may claim to know how to cave dive, but he wasn't on the cave dive rescue team and most of the actual dive team refused to hang out with him. I wonder why.

<https://www.google.com/search?q=chiang+rai+child+sex+trafficking&rlz=Cj5KsQJTC56h1eexa56jentzafao>

As for this alleged threat of a lawsuit, which magically appeared when I raised the issue (nothing was sent or raised beforehand), I fucking hope he sues me.

2,761 2:09 PM - Sep 4, 2018

925 people are talking about this

Buzzfeed said: "It is unclear why Musk believes the allegations against Unsworth or what evidence he has to support them. Musk did not provide proof of his claims to BuzzFeed News, and BuzzFeed News could not verify any of the claims after reporting on Unsworth's background."

It had looked as if the feud was over in July when in a reply to a Twitter user who shared an article about the fall-out, Musk said: "As this well-written article suggests, my words were spoken in anger after Mr Unsworth said several untruths and suggested I engage in a sexual act with the mini-sub, which had been built as an act of kindness and according to the specifications from the dive team leader.

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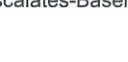
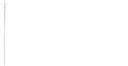
This Halloween, Spare A Thought For Teachers Who Are Often The Targets Of Intimidation



Exclusive: How Lebanon's Hariri defied Hezbollah



Elizabeth Warren's Untenable Plans



Leaders



Donald Trump
45th President of the United States of America



Mike Pence
Vice President of the United States

#3502

10/31/2019

Elon Musk Calls Thai Cave Diver Hero A 'Child Rapist' As He Escalates Baseless Feud - feedimo

USA

Feedimo

alone."

HuffPost UK has contacted Tesla and Musk for comment.



Angela Merkel
Chancellor of Germany



Emmanuel Macron
President of France



Justin Trudeau
Prime Minister of Canada



Nancy Pelosi
Speaker of the United States House of Representatives



Barack Obama
44th U.S. President



Theresa May
Member of Parliament of the United Kingdom



Vladimir Putin
Russian President



Shinzō Abe
Prime Minister of Japan

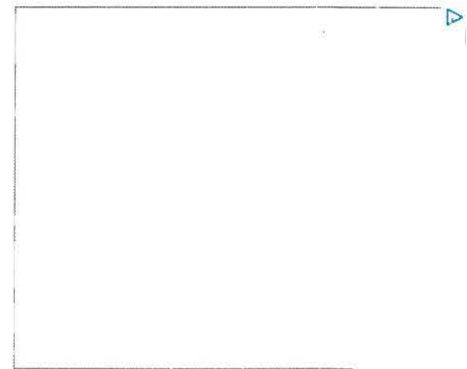


EXHIBIT 4

9/24/2019

If You're Calling Someone a 'Pedo' on Twitter, Elon Musk, It's Time to Take a Long, Hard Look at Your Life | Inc.com

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If You're Calling Someone a 'Pedo' on Twitter, Elon Musk, It's Time to Take a Long, Hard Look at Your Life

I give you the same advice I gave the people who attacked you last week. Stop and think before you tweet again.



By Bill Murphy Jr. www.billmurphyjr.com [@BillMurphyJr](https://twitter.com/BillMurphyJr)

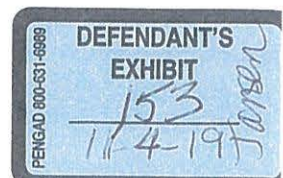


GETTY IMAGES

(Update: Enough about Elon Musk. I'd now read about these [unsung heroes of the Thai cave rescue](#).)

Last week, people were criticizing [Elon Musk](#) for quickly building a "mini-submarine" to try to help the [Wild Boars soccer team rescue](#) in Thailand.

The sub wasn't needed in the end, of course, but it was crazy for people to attack him over it. And I was quick to defend him.



9/24/2019

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Today, however, it's Musk who's blatantly, flagrantly in the wrong. I have the same advice for him: [Take a long, hard look at your life.](#)

Here's what happened.

"Sorry pedo guy"

Vernon Unsworth, a British man living in Thailand who was part of the rescue effort and is credited with convincing the Thai and British governments to send three of the world's best cave divers to the rescue scene, joined in the criticism of Musk.

In a [CNN interview](#), he called the mini-sub a "PR stunt" that had "absolutely no chance of working," and said Musk could "stick his submarine where it hurts."

Musk hit back hard, reportedly at first arguing about the merits of his kid-sized submarine, but quickly turning ad hominem.

"We will make one of the mini-sub/pod going all the way to Cave 5 no problemo. Sorry pedo guy, you really did ask for it," Musk reportedly tweeted. (The entire exchange has now been deleted.)

Other Twitter users pushed him to back up his charge, to which Musk tweeted: "Bet ya a signed dollar it's true."

What's the upside?

How is this wrong? Let me count the ways.

It's wrong because obviously you don't go around calling people pedophiles (or "pedos") without proof. Even then, I'd probably do it sparingly.

And it's also wrong because there is literally no upside here.

The universe of people who were paying attention to this kerfuffle was shrinking by the minute. And Musk had already won the argument when he released emails he'd had with Dick Stanton, one of the two civilian divers who'd led the tactical rescue effort.

I truly don't understand why he'd bother to engage. This isn't like five years ago, if you recall, when the *New York Times* gave a bad review to the Model S, and Musk responded to it [point by point](#).

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I mean, if Elon Musk were hit by a bus tomorrow, he'd leave behind a truly great legacy of entrepreneurship. Unsworth, for all his involvement in the Thailand rescue, is still pretty much unknown.

Or at least he was until Musk decided to engage and make a totally baseless accusation.

Are you Steve Jobs or Henry Ford?

I don't know why Musk seems to have such a thin skin and such a need for attention. I suppose it's likely entwined with all the things that make him successful.

But at 47 years old, he needs to decide to take control of his ego and display a little bit of emotional intelligence.

I think he needs to decide whether he wants to be the Steve Jobs or the Henry Ford of his generation. Both men were visionaries--both hard-driving, bend-the-universe leaders.

Jobs is remembered now as a brilliant innovator and leader, but frankly kind of a jerk--somebody who could be brutal or even cruel to the people he worked with, but who did so in furtherance of futuristic goals. He's largely held up as a positive example.

Ford, on the other hand, is remembered as an industrial age genius--but he's also highly controversial for some of his way-out-there beliefs and actions.

We can start with the kind of virulent anti-Semitism he displayed, which led Adolf Hitler to praise him before World War II, and leaves him now unable to even get his name placed on a memorial bridge in a small Florida town.

Nobody's accusing Musk of anything like that now. He's a fascinating figure with world-class ambition, drive, and success.

But stunts like this "pedo" tweet display a dark side and impetuosity that can be really troubling. And that's a problem worth engineering a solution for.

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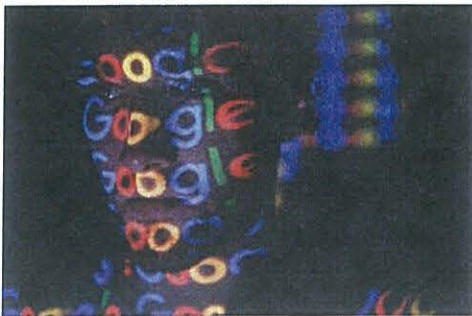
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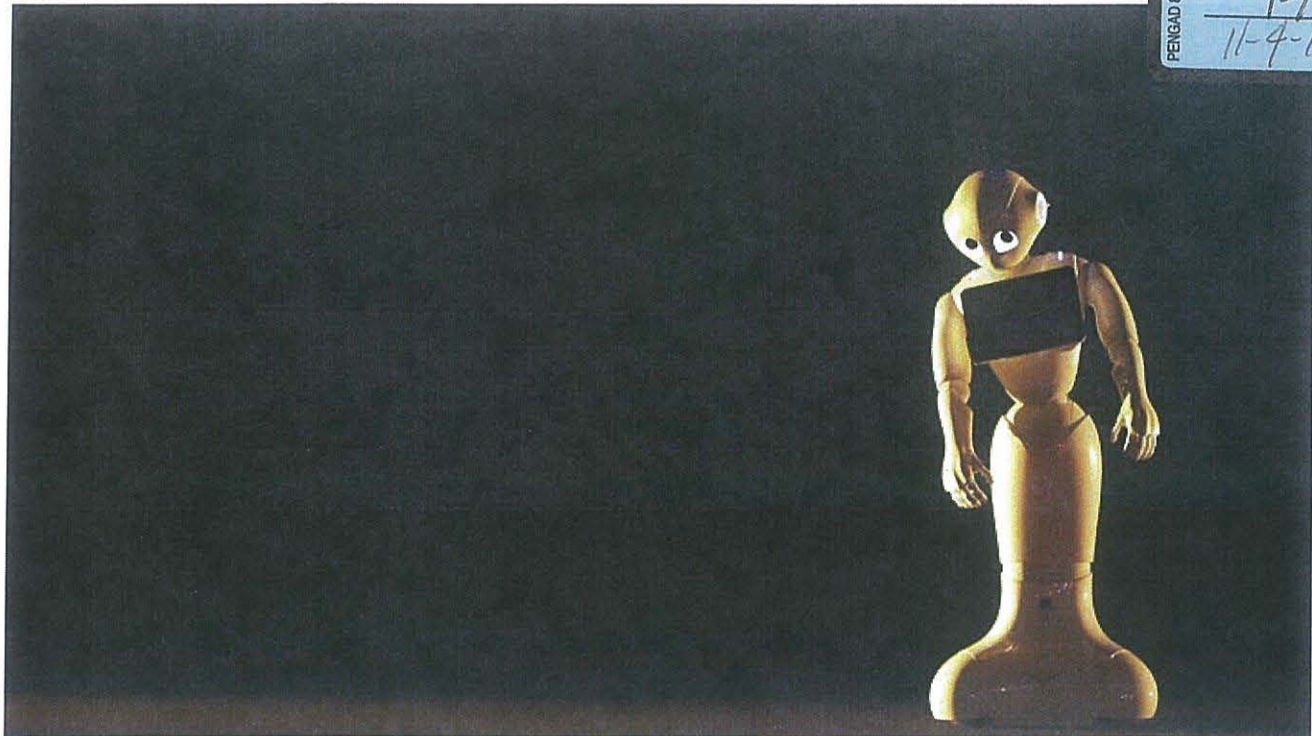
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TECHNOLOGY

The Internet Is Mostly Bots

More than half of web traffic comes from automated programs—many of them malicious.

ADRIENNE LAFRANCE JAN 31, 2017



ISSEI KATO / REUTERS

Look around you, people of the internet. The bots. They're *everywhere*.

Most website visitors aren't humans, but are instead bots—or, programs built to do automated tasks. They are the worker bees of the internet, and also the henchmen. Some bots help refresh your Facebook feed or figure out how to rank Google search results; other bots impersonate humans and carry out devastating DDoS attacks.

Overall, bots—good and bad—are responsible for 52 percent of web traffic, according to a new report by the security firm Imperva, which issues an annual assessment of bot activity online. The 52-percent stat is significant because it represents a tip of the scales since last year's report, which found human traffic had overtaken bot traffic for the first time since at least 2012, when Imperva began tracking bot activity online. Now, the latest survey, which is based on an analysis of nearly 17 billion website visits from across 100,000 domains, shows bots are back

on top. Not only that, but harmful bots have the edge over helper bots, which were responsible for 29 percent and 23 percent of all web traffic, respectively.

“The most alarming statistic in this report is also the most persistent trend it observes,” writes Igal Zeifman, Imperva’s marketing director, in a blog post about the research. “For the past five years, every third website visitor was an attack bot.”

Put another way: More than 94 percent of the 100,000 domains included in the report experienced at least one bot attack over the 90-day period in Imperva’s study.

Websites that are less popular with humans—as measured by traffic—tended to attract more visits from bots. “Simply put,” Zeifman wrote, “good bots will crawl your website and bad bots will try to hack it regardless of how popular it is with the human folk. They will even keep visiting a domain in absence of all human traffic.”

Though bots are interested in websites even when humans are not, bot activity tends to mirror human behavior online. For instance, the most active helper-bot online is what’s known as a “feed fetcher,” and it’s the kind of bot that helps refresh a person’s Facebook feed on the site’s mobile app. Facebook’s feed fetcher, by itself, accounted for 4.4 percent of all website traffic, according to the report—which is perhaps stunning, but not altogether surprising. Facebook is a behemoth, and its bot traffic illustrates as much.

Overall, Feed fetchers accounted for more than 12 percent of web traffic last year. Search engine bots, commercial data-extracting spiders, and website monitoring bots are among the other helpful bots you’re likely to encounter online. (That is, if you consider the collection of your personal data for advertising purposes to be helpful.)

Data-grabbing bots do their work invisibly, while other bots are easier to spot. In fact, bots and people bump into one another often. Spambots show up in comment sections and Twitter bots clog people’s timelines with everything from marketing, to political campaigning, to social activism, to utter nonsense. These sorts of bots aren’t always pleasant, but they aren’t outright dangerous.

For the real villains, we turn to impersonator bots used for DDoS attacks. They accounted for about 24 percent of overall web traffic last year. Top offenders in this category included Nitol malware, a bot called Cyclone meant to mimic Google’s

11/2/2019

The Internet Is Mostly Bots - The Atlantic

good search-ranking bots, and Mirai malware—a virus that caused mass internet disruptions in the United States in October.

Other bad bots to contend with include unauthorized-data-scrappers, spambots, and scavengers seeking security vulnerabilities to exploit. Together, they made up about 5 percent of web traffic.

And even though the internet is already mostly bots, we're only just beginning to see the Bot Age take shape. According to the market-research firm CB Insights, more than a dozen venture-capital-backed bot startups raised their first round of funding last year.



The Dangers of the Deep Web

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